ComputerWeekly

Thursday, July 29, 1982

Fifth generation plans not as grand as some suppose say Japanese

by Philip Hunter

PUBLICITY given to Japanese plans to develop fifth generation computer systems has obscured their limitations. The scale of the plans is not as grand as some people have supposed, according to Shunichi Uchida, the Fifth Generation Computer Project director.

The Japanese government will invest about $500 million in the project over the next ten years, hardly an astronomical sum in the context of IBM's research and development expenses of $1,612 million in 1981.

The research team for the project consists of 40 people, and has just moved into its first laboratory occupying a single floor of a Tokyo office building. The team has yet to decide on the hardware on which to begin its research.

The Japanese Ministry of Technology has identified eight key electronics companies including Fujitsu, Hitachi and Mitsubishi, with which to invest the $500 million it has asked the Japanese government to provide for the next ten years of the Fifth Generation Project.

But only $50 million of this, to cover the first three-year stage, has so far been released by the Japanese Ministry of Finance. The remainder, to cover the intermediate four-year stage and final three-year stage of the project has yet to be agreed on.

There has been conflict over how much to spend on the project, according to Uchida.

"We have many critics in Japan," he says. "Many manufacturers suggest we have more urgent research items."

Some of Uchida's critics think more money should be invested in networks like Decnet, an area in which Japan is weak. Uchida says that networks have been slow to come in Japan, partly because of the high cost of telephone lines.

But he points out that some of these critics have been appeased by a new supercomputer project to develop machines of the calibre of the Cray I, currently one of the world's most powerful machines.

Uchida expects that a Digital Equipment System 20 will be bought for the project. "This is because we need the most popular machine in the research field, but not IBM obviously," says Uchida.

"But some people are insisting we buy Japanese."

The aim of the first three-year phase of the Japanese project is to build an interim research machine called SIM, Sequential Inference Machine. SIM will be a personal computer with a hardwired implementation of the logic programming language Prolog, which is favoured in Japan as a central kernel language on which to build expert systems and other high level languages.

UCHIDA . . . "*We have many critics in Japan*".

'Prestel is a failure'

by Boris Sedacca

PRESTEL's success is becoming highly unlikely, according to professionals at last week's Sperry Univac seminar in Nice.

There was little dissent to the idea that Prestel is a failure.

"The reason is that the customer has to pay three different types of vendors who market the service," said Ian McNaught-Davis, managing director of Comshare UK, a leading time sharing bureau.

"He pays for telephone charges to British Telecom, for a terminal supplied by manufacturers who have generally set their prices too high, and for the information supplied by the information providers."

Heinz Wolff, director of the bioengineering division of the Medical Research Council's clinical research centre, added: "There is no evidence that the type of information provided by Prestel is needed on such a scale, because only a tiny proportion of the population uses the service."

Christopher Layton, special adviser on information technology to the European Commission, agreed that Prestel was "obviously a primitive form of information system and not very widely used."

The only note of praise for Prestel, albeit a cautious one, came from Dr John Dawson, head of the professional, scientific and international affairs division of the British Medical Association.

"The medical profession is one of the heaviest users of Prestel, and its application could be extended to provide medical advice in the first instance to patients, from which epidemiological information could be gathered," he said.

Policies 'chase away US manufacturers'

EUROPEAN policies are chasing away US computer manufacturers at a time when the EEC lays plans to give a massive injection of money to challenge the American and Japanese dominance of computer manufacturing.

That was the view given by Bill Read, general manager of Sperry Univac, at his company's week of seminars held last week in Nice.

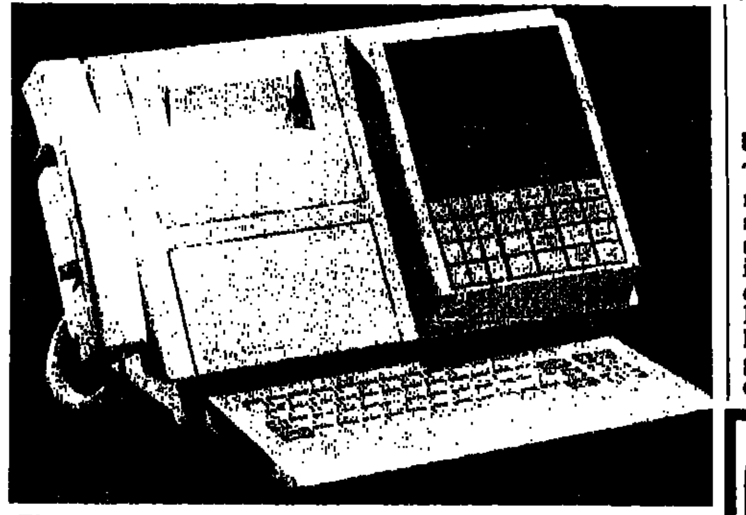
Read warned that there were already signs of retrenchment in the European operations of US computer manufacturers.

Read's warning came during the discussion session on information technolgy and followed the announcement by Christopher Layton, special adviser and hon director-general to the European Commission, of the European Strategic Research Programme in Information Technology (Esprit).

Layton said that up to 1.5 billion units of account ($1.5 billion) could be spent if pending proposals are accepted by the European Commission. This figure is based on a consultants' report of what is required in additional spending necessary over and above the $40 million already being spent by member States.

The Community is initially only prepared to discuss a pilot project on a Joint European Planning Exercise which could involve $11 to $12 million units of account plus an equal contribution from industry.

"There are now signs of retrenchment among US companies operating in Europe many of which are looking to the Third World to expand" Read said.



The Triemco 2000.

Sold out until 1984

by Kevin Cahill

THE Triemco 2000, an all-in-one microprocessor-driven communications device produced by Triple M, claims to have made the sale of the century.

According to Cecil Kernot, president of Luxembourg-based International Communications Technology, ICT, which owns the Triple M Corp, all four million units of the device are sold out through to 1984.

The promoters say that the Triemco 2000 combines voice, vision and electronic data reception over the public switched telephone network, records and logs all calls made, stores and prints messages on the incorporated thermal printer and will give access to Videotex and Prestel.

The device was designed for ICT and Triple M by the Stamford Research Institute, and is for sale to a series of national PTTs at a price of around $1,000. That would give ICT a 35% profit margin.

This means that ICT has sold $4 billion worth of the Triemco, to make a grand total of $1.4 billion in profit by 1984.

According to Kernot all the production is for confirmed orders and the units are being produced in Hong Kong by the Conic Corp, an electronics company.

Warrants for Hitachi men

by Howard Karten

THE US government last week moved forward with its case against Hitachi, Mitsubishi and several employees of the two firms, issuing warrants for nine Hitachi employees who remain in Japan. Eight other Hitachi employees have already entered pleas of not guilty in the "Japscam" industrial espionage case.

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Thursday, August 5, 1982 Number 820 30p

BT keeps best of its monopoly

by Donald Kennett

BRITISH TELECOM has won the latest round of its battle with the government and the independent computer services companies and has retained most of the lucrative parts of its monopoly.

But its victory could backfire on British Telecom in the long term. Its private rival, the Mercury network, could pick up much of the business under the terms of its own licence.

For the public corporation's pressure has resulted in a drastically slimmed-down list of services which outside organisations can offer on its networks (value-added network services or Vans).

Excluded from the draft general licence for Vans, circulated last week by the Department of Industry, are packet switching, encryption, error control and other security measures on their own.

Companies will only be able to offer services under the general licence which substantially alter the format, code, protocol or content of the messages they deliver or store them in a manner other than that used in their forward transmission.

The wording of the new general licence is not specific but a spokesman for the Department of Industry confirmed that it was designed to exclude packet switching.

This arrangement could backfire on BT by forcing companies wishing to offer such services to go to its rival Mercury.

Mercury itself is entitled to provide packet switching or any other enhancements to its basic transmission network, but its management has always said it would leave these functions to its customers initially.

It would be possible for Mercury to enter partnerships or other contractual arrangements that would enable other companies to be involved in providing basic network enhancements not covered by the general licence. They could also be permitted by a special licence from the Department of Industry.

"Whatever the customer wants, I am sure we will find a way to provide it," said Mercury chief executive Derek Evans. "We are hoping the general licence will cut out a lot of the need for special licences. We will be submitting our comment on the draft."

The full licence is likely to be issued in its present form before the end of the month unless there is strong criticism. The government's aim is to get a useful licence in force as soon as possible and to follow it up with further licences should the need become apparent from the comments it receives now.

The terms of the licence require licensees to give details of their

● Turn to back page

EVANS . . . "*We will find a way to provide it.*"

Sperry axes 80 UK jobs

PASCOE . . . "*Not encouraging*".

by Kevan Pearson

SPERRY UNIVAC is to cut back its UK workforce, though it refused to say by how much. The figure is believed to be about 8% of its 1,000 employees.

A spokesman confirmed the cutback, but would not say how many would be affected.

The move follows a particularly bleak first quarter result for the US owned conglomerate, of which Sperry Univac is the computer division. Sperry Corp saw its profits in the quarter crash by 66.5% at $16.2 million. Sales fell by over 7% in the first period to $1.22 billion compared with the first quarter of 1981.

Sperry Univac's sales in the same period were down by 5%.

The first hint of things to come were voiced by John Pascoe, Sperry Univac UK sales and marketing director, at the Sperry 1981 Review, earlier this year. He said that "the outlook for 1982 was not very encouraging".

Sperry Univac is not the only division to be affected in the UK. The company is rationalising its operations on several fronts. It has recently completed the sale of Sperry Gyroscope subsidiary, and is also selling off one of its other industrial products concerns.

NEWS BRIEF

Star buys Hartley UK for £700,000

LONDON-BASED systems house Star last Monday paid £700,000 for Hartley UK, the British arm of crashed Australian accountancy package house Hartley.

Star announced that it would be obtaining a full Stock Exchange listing as soon as possible.

Creditors meet

A MEETING has been called for creditors of Cranfield Computer Services, part of the Cranfield Group based in Welling, Kent. Managing director John Keyes confirmed that the meeting will be on August 10, but refused to comment further. Creditors include equipment supplier Control Dataset, and WH Cork Gully & Co has been appointed receiver.

Takeover

DATA Type International, the newly-formed terminals and minicomputer systems group, has bought Teledynamics, the Swiss subsidiary of the defunct Data Dynamics. Teledynamics is the second slice of the bankrupt terminal supplier that Data Type has purchased. It bought the West German subsidiary shortly after Data Dynamics went into receivership.

Micro payphones

BRITAIN'S 77,000 payphones are to be replaced by 1985. A £40 million order has been awarded to Plessey for its new microprocessor-controlled push button telephone which automatically notifies engineers if a fault develops or the coin box requires emptying. The first of the new phones will be in use early next year.

IBM quits Severn-Trent action

by Kevan Pearson

IBM has pulled out of its legal action to stop the Severn-Trent Water Authority from handing a £15 million contract to ICL. But the US company remains angry with what it sees as a mid-stream changing of the rules of tender without informing the companies involved.

The cost to IBM of preparing the tender was £200,000, which a spokesman said was a waste of "money and effort".

IBM withdrew its action on the second day of a High Court hearing when it discovered that the legal basis of its case — that the full water authority board had not reviewed the contract — was invalid.

Evidence revealed that the decision to give the contract to ICL had been endorsed by a general meeting of the water authority on June 3, 10 days after IBM had started the proceedings.

IBM's case claimed that the Severn-Trent Policy and Resources Committee had exceeded its responsibilities in giving the contract to ICL, since to do this it had to change the criteria on which the contract was awarded.

The withdrawal resulted from an oversight on IBM's part rather than a retreat from the general principle of equal treatment of foreign and domestic computer manufacturers as laid down by European Community and international trade agreements.

IBM's public climbdown on the second day of the High Court hearing must have been a bitter pill to swallow. Its lawyers could have been expected to know about the June 3 decision by the full water authority board before the case came to court.

The company is leaving its options open on further action.

The main point, said a spokesman, is that the rules of the tender were changed during the course of the evaluation without informing the companies involved.

On the basis of the original instruction, the criteria by which the tenders were to be evaluated were technical feasibility, possible failure of the installed system to meet the performance specification, and cost.

On the basis of these criteria the authority's evaluation panel, made up from members of its data processing department, concluded that IBM and Sperry Univac could supply systems today which meet the specifications, and IBM was "the clear leader". ICL was considered "not yet able to supply proven hardware and software for the long term".

Set against this is that IBM's tender at £15.98 million was £1.7 million more than ICL's price.

Meanwhile Burroughs is to continue in its action against the Oxfordshire Regional Health Authority in a similar case. The company recently lost its attempt to get an injunction stopping the authority from giving the contract to ICL. It is pursuing the action on two further fronts: a High Court claim for damages, and an EEC ruling.

A spokesman for Burroughs said the High Court case was unlikely to be heard until next year.

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ITT's French assets are nationalised

by Jack Gee

INTERNATIONAL Telephone and Telegraph has signed an agreement to sell its four major subsidiaries in France to the French government for $50 million, after cliff-hanging negotiations which were often near collapse.

Tense discussions ended in a victory for the French, when ITT agreed to foot the bill for a big share of the heavy operating loss predicted for this year.

The talks were conducted in an atmosphere of mutual defiance. ITT warned that, unless it got its way, it would declare its French companies bankrupt and leave the Mitterrand administration to find new jobs — or dole payments — for its 8,500 employees.

The French, who had refused an ITT demand for $350 million from the outset, tried to bring the price down to a symbolic $15 million. They argued that ITT would be unable to find another customer for its French interests.

ITT has agreed to an audit and to shoulder responsibility for operating losses through the first nine months of this year which exceed FFr100 million ($14.6 million/£8 million).

CGCT, the leading ITT French subsidiary, lost FFr145 million (£13 million) in 1980 and FFr6 million (£500,000) last year. Losses for 1982 are likely to be above the 1980 level.

The other ITT companies covered by the agreement are LCT, Pouyet and La Signalisation.

The agreement gives the French government a free hand to plan its industrial strategy. The nationalisation of the ITT subsidiaries completes its programme of State takeovers.

Harry Edelson, a securities analyst with First Boston Corp, described the ITT-France agreement as "a poor deal". Edelson said ITT would not have faced disaster if it had broken off talks with the Franch. But he pointed out that, since ITR would have little posibility of selling its French firms to another buyer, "some money is better than none. . ."

The negotiations with France were bedevilled by a split between board members of ITT. President Rand Askarog was apparently pushing for a hard bargain with the French. Michel David-Weill, a senior ITT director, said the multinational should accept the French terms.

French negotiators were particularly sensitive during their bargaining with ITT to the fact that large loans from French banks to CGCT, the leading ITT subsidiary in France, were not guaranteed by the parent company in New York.

MITTERRAND . . . Talks conducted in atmosphere of mutual defiance.

Apple sues Hong Kong companies in bid to stop cheap look-alikes

by Maggie McLening

APPLE Computer is to sue two companies in Hong Kong in its latest attempt to quell the flow of Apple look-alikes on to the world market.

Alleging infringement of copyright, trade mark and patents, Apple has been awarded a court order enabling it to seize goods relating to the claim from the Hong Kong companies. This follows Apple's recently filed suit against Franklin Computer Corp, FCC, in New Jersey over similar alleged infringements, which has resulted in FCC filing a counter claim accusing Apple of "anti-competitive and predatory practices", which are illegal under US anti-trust legislation.

In Hong Kong, an Apple II microcomputer with 38K memory sells for about HK$8,400 (£840), and the copies retail for HK$3,000 upwards.

Apple is claiming undisclosed damages for loss of revenue because of look-alike sales. The ratio between sales of copies and originals is believed to be about 10 to one, and the average number of Apple sales per month is about 60.

Specific items mentioned in both the US and the Hong Kong cases include copyright of manuals supplied with the computers, use of the Apple trade mark and infringement relating to VDU and colour display technology. The machines in question are not being manufactured in Hong Kong, but are being assembled there by back street operators. Most of the parts are readily available, however, from electrical components manufacturers, and Apple has only recently registered its ROM operational code.

This was registered in an attempt to stem the tide of cheap Apple-type machines flooding out of Taiwan, where it is estimated that 50 companies are turning out 100 computers a month. These are selling for about $250 apiece.

The lawsuit against FCC was filed in May and relates to FCC's Ace 100 personal computer, which runs under the same DOS operating system as the Apple II. According to Joel Shusterman, president of FCC, DOS is not protected by any patent or copyright and infringement claims over colour displays are "quite frivolous", because the Ace does not have colour.

Mitterrand investment 'to create 80,000 jobs'

FRANCE'S computer industry will be the leading beneficiary of a government decision announced last week to earmark FFr140 billion (£11 billion) for development of electronics and data processing over the next five years.

Existing projects had provided for expenditure of FFr90 billion (£7 billion) before the new cash package was finalised at a Cabinet meeting over which President Mitterrand presided.

The funds will go to State-controlled companies such as CII-Honeywell Bull and semi-public firms like Matra, as well as private groups like IBM France.

Jean-Pierre Chevènement said this ambitious dose of investment would create 80,000 new jobs in the computer industry.

The government announcement came at a time when the data processing industry is concerned about the threat of drastic cuts in government spending. Finance Minister Jacques Delors told his Cabinet colleagues to make wide-ranging economies in their budgets following the introduction of an austerity programme.

CGE, Thomson and CII-Honeywell Bull, which are all involved in computer manufacture, will receive FFr2.3 billion (£185 million) out of the FFr10 billion (£800 million) which the government has set aside for nationalised industry this year.

FCC Reform Bill lost

THE Wirth FCC Reform Bill, which would have been the first comprehensive rewrite of the 1934 Communications Act, died last week. Representative Tim Wirth, Democrat of Colorado, withdrew the Bill following massive lobbying by AT&T. Wirth charged that AT&T had conducted a massive campaign designed to spread fear and distortion.

The Wirth Bill was seen by many observers as more pro-consumer and pro-competition than an FCC Reform Bill currently in the Senate.

Among other things, the Wirth Bill would have left the yellow pages and the installed equipment base with local companies.

Tandy moves outside Radio Shack stores

by Robert Parry

PERSONAL computer manufacturer Tandy is to spread its US marketing network beyond its own Radio Shack stores.

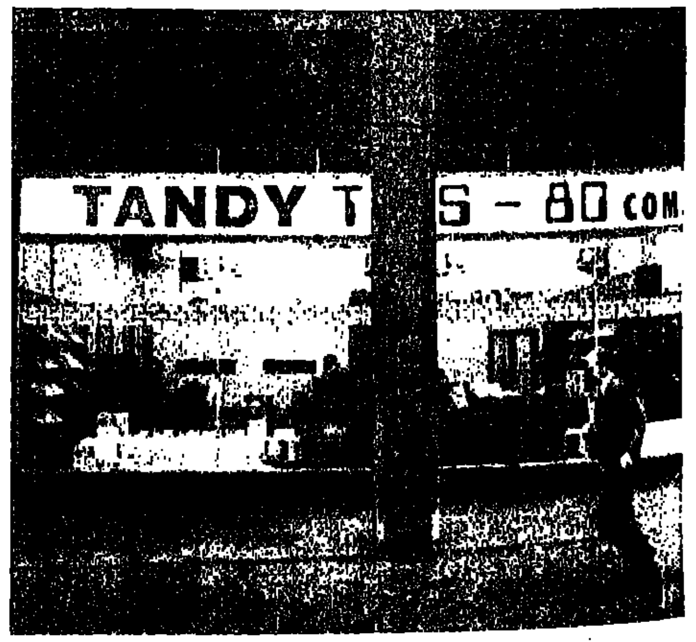
A line of home computers will be sold through dealers, where the machines will compete directly with those from rivals Atari, Commodore and Texas Instruments.

This will be the first time that Tandy has moved outside Radio Shack in America. About 2,000 retail outlets will be supplied by 60 independent distributors at first. The machine they will sell will be a repackaged version of the TRS-80, called the TDP System 100.

In the UK Tandy already sells the TRS-80 range through independent dealers as well as the 240 Tandy stores. There are 80 dealers around the country, selling the TRS-80 alongside competing personal computers.

Tandy's move in the US is seen as a response to loss of sales through its previous insistence on selling only through the Radio Shacks. It reckons the US home computer market will grow quickly enough for the Radio Shacks and the independent dealers both to flourish.

But some observers feel Tandy is competing with itself. Its loss of control over product prices once the computers reach the dealers could lead to undercutting of Radio Shack's prices.



TANDY . . . Spreading its marketing network.

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MASCARENHAS . . . "We believe we are the first".

P-E software boost for 32-bit hardware

by Maggie McLening

MINICOMPUTER manufacturer Perkin-Elmer is giving its 32-bit hardware a software boost with what it claims to be the first relational database system for minis.

Previously, its 3200 range of "superminis" has used a combination of the relational query language, RQL/32, and the Reliance TP system, both developed by Perkin-Elmer to provide relational-type enquiry facilities.

RQL/32 uses the multi-key data management system DMS/32 to join files and select information, producing a pseudo-relational hit-file, on which to make enquiries. Newly-released Reliance Plus is a true relational database system.

"We believe that we are the first manufacturer with a full relational database system," said Fred Mascarenhas, UK product marketing manager of Perkin-Elmer Data Systems. "There are a lot of others around with overlays, using an intermediate file, but all of their transactions are performed on standard files."

Reliance Plus is a high performance online system which provides a complete environment for application systems development, using Cobol and Fortran programming languages. Query and report generating language RQL/32 has become part of Reliance Plus, to provide end-users with a simple tool for extracting information.

According to Mascarenhas, there will also soon be an announcement about a system generator to speed applications development, although Reliance Plus already incorporates a number of data management features as standard to release the programmer to concentrate on applications. These include data access mechanisms, terminal management, concurrency control, database integrity and recovery techniques.

"There are several features that we thought were standard until we discovered from potential customers that other systems did not have them," said Mascarenhas. "Our failed transaction facility, for example, allows the user to 'uncommit' all the updates that have been done online without having to roll-back the entire database."

Another example he cites is the use of data compaction algorithms to contract automatically unused parts of data records to fit in the least possible amount of storage space. This gives users maximum flexibility when developing a system to specify more data items than may ultimately be needed, to avoid problems of rewriting an entire system to include extra fields later.

Existing users of Reliance II TP system and RQL/32 will be able to upgrade their software to include Reliance Plus for £6,160. The price is £18,870 to new users, and the system runs on any Perkin-Elmer 32-bit system with a minimum of 1Mbyte of memory, 80Mbytes of disc, and editing VDUs, under the OS/32 operating system.

Systemsolve buys up Cortez TP monitor

by Robert Parry

SYSTEMS and software house Systemsolve is on the acquisition trail. This week it bought the Cortez teleprocessing monitor from Athena Software, an offshoot of Zeus Hermes, and is looking for other products or companies to complement its business.

In taking on Cortez, Systemsolve has taken over the mantle of providing support for the 50 UK and European users. Cortez has sold well since it first appeared in 1975, but has been dormant for the last couple of years, says John Oke, former sales director of Zeus Hermes and now heading Systemsolve's marketing of Cortez.

Now Systemsolve plans to develop Cortez again, particularly for the ME29 market.

Systemsolve was the first company to sign up with ICL for the ME29 under the Traderpoint scheme. Continuity will be provided through a support team which came over with the product from Athena Software. Many of them came from Zeus Hermes before that.

"We'll give the kiss of life to Cortez," Oke promises, adding that users are already re-opening lapsed maintenance contracts.

Systemsolve has diversified over the past few months moving application packages across its range of hardware and developing its access control system Vortacs. It handles machines from ICL, Hewlett-Packard, CTL, Sperry Univac and Data General — the last added in October 1981 when Systemsolve took over the DG operating unit of Commercial Computing.

Now it is looking outside the company again to augment its business. The Cortez acquisition ties together the ICL hardware and the application packages Systemsolve already has, moving it towards the usual goal of selling complete solutions to end users. It also gives Systemsolve a foothold in government computing.

The sort of acquisition Systemsolve is looking for falls into three groupings, says director Derek Williams. "There are entrepreneurs with ideas beneficial to our business areas, businesses looking for funds, and businesses which have seen better days."

FBI changes story on 'stolen technology' IBM contract

by Howard Karten

THE US Federal Bureau of Investigation has made a sudden change in story of why it rejected a bid for a large-scale computer that included Japanese technology.

In the wake of the IBM spy scandal, the FBI said it turned down a bid from the Vion Corp on the grounds that the Hitachi-based system could have contained technology stolen from IBM.

But after widespread criticism, the FBI now claims that the IBM system it finally chose ranked higher than the Vion bid in a ranking procedure.

Vion officials contest that allegation, charging that IBM outscored Vion only after two FBI evaluators who were favourably disposed to Vion were removed from the evaluation panel.

Government procurement in the US, like government procurement throughout the world, involves a certain amount of inter- and intra-agency politicking.

The FBI in the past have been seen as consummate politicians, often able to operate with a virtually free hand.

An unusual aspect to this case is the apparent clumsiness with which the FBI is handling the original claim that it rejected Vion's bid containing Hitachi hardware in part because of the alleged industrial espionage.

That explanation would have meant that the FBI had in effect acted as judge and jury in the Hitachi-Mitsubishi-IBM industrial espionage case.

In Washington, the FBI said it would have no comment on the case out of concern for the rights of Vion, which is expected to appeal against the Bureau's decision.

Washington-based Vion has been doing business with the government for about 10 years, and has installed an estimated 100 systems throughout the government, according to Vion president P. David Pappert.

Grundy gets European bridgehead

by Robert Parry

UK MICRO-MAKER Grundy has made a French bridgehead for the "invasion" of the Continent with its once slow-to-take off NewBrain micro.

The company has signed up Paris-based Sanocor as a French distributor, and deals are near completion in Holland, Greece, Denmark and Portugal. The company has sold 100 machines so far, and aims to ship 300 in the next two months.

Talks are also under way with potential distributors in the US, Scandinavia and other European countries, and machines are going through government approval cycles for Germany and the US.

In France, the company is aiming at home users and business users, but has few hopes of getting into the education market there. "If anything, the French are even more nationalistic than we are," says Grundy marketing director Andy Surtees. For the UK the education market is expected to show more promise than home hobbyist users.

Sanocor, a business consultancy, will handle all aspects of distribution including direct sale to customers.

It will set up a business microcomputer centre to provide technical and software support for the NewBrain.

SURTEES . . . "French more nationalistic".

Philips to sponsor training

by Boris Sedacca

PHILIPS is to help cut through the mystique of office automation for UK managers with the aid of the Industrial Society. The company has agreed to sponsor a training programme at the Industrial Society, organisers of supervisory and managerial courses, to the tune of £4,000.

Caroline Blaazer, senior adviser for the information technology unit at the Industrial Society, said: "It pays for our time as consultants for about ten days."

Brian Manley, Philips Business Systems group managing director, said: "An increasingly important area for the application of funds in our industry is the relationship between our machines and the people who use them.

"People in offices are often confused, anxious and misinformed about the impact of office automation equipment. Their worries are usually unfounded, but so far our industry has made too few serious efforts to prepare people for these changes in their working environment," he said.

MANLEY . . . "People in offices are often confused and misinformed".

Manley added: "We feel that this sponsorship offers us an excellent opportunity to discharge part of our responsibility towards the people who use our products."

The Philips sponsorship will allow the Industrial Society to visit a number of Philips customers using the company's office automation equipment, to provide research material for the Society's training course.

Blaazer admitted that the result was a narrowing down of the field to the users of one company's products, but added: "We have discussed this at length and we are aware of the problem, but we are totally impartial."

IBM surprise move into US leasing

by Kevan Pearson

IBM is making an unprecedented move into the leasing market in the US to boost its cash flow and brighten its balance sheet. The company has clinched a deal with Merrill Lynch, the US finance house, to provide operating leases on its smaller systems instead of the rental agreements it currently offers.

The deal enables IBM to generate more hard cash up front, since sales will be financed by an outside financier through Merrill Lynch. IBM will gain the full amount on the transfer of the equipment instead of getting rental revenue over a substantially longer period.

IBM will not own the equipment, so it will not appear in its balance sheet, which in turn will improve IBM's rate of return.

A member of the UK leasing industry commented, "IBM needs a lot of cash in a big way. And it wants to take the title to the equipment out of its balance sheet."

The new agreements cover leases on Systems 34 and 38, the 4300 range and the 8100 series.

The lease periods range from three to five years, as opposed to the two to four-year periods available under the present rental agreements.

The new leases will also exclude maintenance, and the lease rates will be fixed, instead of being changeable subject to 90 days or six months' notice depending on the equipment in question.

The exclusion of maintenance is seen as a major boost to the third party maintenance companies since under the rental deals maintenance was automatically included, and the independent companies were excluded from the deals.

The new leases will open up a major slice of business to the independents. They are restricted to the US market at the moment, and some UK companies think things will stay that way.

"IBM has never really got involved in the leasing industry in the UK, says Michael Ward, European leasing manager of Tiger Leasing. "It has been too unattractive. The UK market is entirely different from the US market; tax allowances are different and timing is much more important."

Another consideration is that IBM, like other manufacturers, has an arrangement with Inland Revenue that allows it to treat rental deals as sales for tax purposes. This has the effect of taking the kit out of IBM's balance sheet.

Vernon Etherington, a director of computer brokers Combro, says: "The major difference is that we get 100% first year allowances on capital expenditure – that is what makes our leasing so cheap. Large companies can get leases at an effective interest rate of about 8.5%."

In the UK capital allowances accrue to the owner of the equipment, irrespective of who uses it. This has made leasing attractive to the banks and independent finance houses which could use the capital allowances to defray their tax liabilities. Leasing was also attractive to users because most UK companies already have sufficient tax allowances in other areas with out purchasing computers.

£90m Indian factory contract confirmed

by Donald Kennett

THE controversial £90 million contract awarded in May to the French company CIT Alcatel to build a telecommunications factory in India has been confirmed by the Indian Cabinet.

The deal puzzled Alcatel's nine rivals in an international tender competition which had not long closed, because no decision was expected before the autumn. But Alcatel's contract turned out to be part of a second phase of India's telecommunications plan. It had been awarded early to enable the French government to offer attractive financial support before new EEC regulations controlling such arrangements came into effect and limited the amount of French support.

India already has factories building analogue telephone equipment which were set up with the help of overseas companies. A spokesman for British Telecommunications Systems, the consortium which markets System X overseas, said he thought India was likely to want to take its digital technology from two alternative sources.

The consortium has bid for contracts in five countries, all of which have yet to complete their evaluations. GEC is lead bidder in India, Standard Telephones & Cables in China and Plessey in Colombia. The two other countries have not been disclosed.

BTG talks on partners for Inmos

by Andrew Thomas

INMOS, the UK's publicly-backed entrant in the high stakes microprocessor manufacturing game, is about to go private.

British Technology Group, which holds the public stake of almost £100 million in Inmos, has been holding talks with two prospective partners or purchaser, British Telecom and electronics giant Plessey.

The group is confident that the three-year-old company will be profitable by the end of 1984, but earlier this year Sir Frederick Wood, BTG chairman, warned that Inmos would probably need another £5 to £10 million this year for working capital.

This financial uncertainty is likely to have discouraged any financial institutions from taking a stake in the venture and BTG has turned to industrial companies in its search for private partners for the microprocessor-making company.

A BTG spokesman claimed that Inmos has already achieved one of its aims and that it had at least 60% of the world market for the fast 16K RAM microprocessors, one of the fastest growing and most profitable sectors of the market.

He said: "Around the end of the year things should begin to harden up, unless a partner comes out of the woodwork before then."

Inmos was set up in 1979 with government backing to establish a UK source for advanced memory devices. The company has recently launched the first of these, a 64K RAM.

Zilog adds 'virtual' processors

by Robert Parry

SEMICONDUCTOR manufacturer Zilog, an early entrant in the 16-bit microprocessor stakes, has added virtual memory processors to its Z8000 stable. Samples of two virtual memory processors, the Z8003 and Z8004, have now been delivered to customers.

The processors have all the features of the original members of the Z8000 16-bit family, but add the ability to work in virtual memory systems. Programs and data being operated on by the processors do not need to be in main memory simultaneously. Parts of programs and chunks of data can be retrieved from secondary storage such as discs.

This means that application programs need not be limited in size by the amount of main memory in the system. When the CPU attempts to access data not stored in main memory, it is interrupted and the state of the CPU saved. The appropriate data is then moved from the disc store into main memory, and the interrupted instruction restarted.

The two versions of the virtual memory processors support different address ranges.

Other microprocessor manufacturers are also moving to virtual memory options. National Semiconductor is sampling its 16032 which like all the recently announced 16000 family supports virtual memory, while Intel and Motorola will be joining the virtual band soon.

Bells are ringing for AT&T data processing plans

by Donald Kennett

AMERICAN Telephone & Telegraph has adopted a two-pronged approach to reap a bonanza in the data processing and communications market. In the past its proposed packet switching network, called Advanced Communications Service, an essential part of its plans, was attacked as being unfair competition on the grounds that it would be a free market data processing service supported by the company's operations in the government-regulated telecommunications industry.

The tortuous history of the US government's regulation of the telecommunications industry includes a consent decree in 1956 between the Justice Department and AT&T, colloquially known as "Ma Bell", which allowed the company to operate as a near-monopoly, a court decision in 1968 which allowed the plaintiff (Carterfone) to sell telephone handsets for attachment to the telephone network, and another court decision a year later which gave MCI Communications the right to have its long distance microwave-based telephone links accessed via telephone companies' local networks.

In 1980 a court awarded punitive damages of $1.8 billion in favour of MCI on the grounds that AT&T had been obstructive about providing this access. In January this year the Justice Department dropped a six-year-old anti-trust case alleging that AT&T had unfairly monopolised the telecommunications industry, but this could yet be revived following lobbying by the company's enemies.

Another court late last year confirmed the Federal Communications Commission's decision that AT&T could compete in data processing and enhanced communications markets if it set up a separate subsidiary to do it. The FCC had been accused of going outside its jurisdiction in making this decision.

Various attempts made over the last few years to sort out the whole matter with fresh legislation have so far failed to reach fruition. The last US Communications Act was in 1934.

Although this issue was resolved by requiring AT&T to set up a separate subsidiary (American Bell), known as "Baby Bell" to run data processing or enhanced communications services, the main company still wants to participate in the packet switching market.

For that reason it has asked the Federal Communications Commission to approve a bare-bones packet transmission and switching network called Bell Packet Switching System (BPSS) as a basic communications service in the regulated sector and is leaving the frills to American Bell.

British Telecom has adopted a similar position under the somewhat different conditions of the UK telecommunications arena.

It has urged the Department of Industry to exclude basic packet switched services such as its Switchstream One from the definition of value-added network services that will be allowed by the forthcoming general licence.

American Bell's proposed service, called Advanced Information System/Net 1 (AIS/N1), is now operating a trial service based on a single node in New York City.

SALES BRIEF

Prime minis for Mexico

PRIME is this month completing the installation of $10.5 million worth of minicomputers for the Mexican government Secretariat de Educacion Publica.

The minis, one Prime 750 at headquarters and 31 Prime 550s in regional offices, will be used for payroll initially and will eventually be linked to head office for a variety of administrative applications. The order includes Prime's DBMS software and 340 terminals.

Safety at sea

GEC-MARCONI has won a £500,000 order from the Ministry of Defence for 80 Lodestar III-D direction finders to be interfaced to automatic distress signal monitors on Royal Navy ships. Equipment of this type is being made compulsory for ships over 1,600 tons following the international Safety of Life at Sea Convention of 1974.

Same again

SOLARTRON-Schlumberger has won a £40,000 repeat order from the Central Electricity Generating Board for a data acquisition and control system for the reactor at Hinkley Point power station. The system is based on a 32K-word Digital Equipment LSI-11/2 microprocessor with a 39-channel analogue transducer scanner.

CAD trial

INTERGRAPH'S two-year-old UK subsidiary has sold one of its Model 2302 computer-aided design systems to South West Electricity Board for a trial Ordnance Survey map and electricity distribution network diagram digitisation project designed to replace manual methods. The system is based on a Digital Equipment LSI-11/23 processor running Intergraph's DMRS data management and retrieval software.

Cray for Nasa

NASA has bought its second Cray computer, an $11.5 million two-megaword Cray-1S/2200 with a one-megaword input-output subsystem, to simulate the performance in-flight of jet engines being designed at Lewis Research Centre in Cleveland, Ohio. Nasa's first Cray is at Ames Research Centre in California.

Ferranti deal

FERRANTI has signed an agreement with Norwegian turnkey contractor EB Communications to work together on the design, manufacture and installation of monitoring and control systems for Norwegian oilfield and petrochemical operations.

Biggest yet

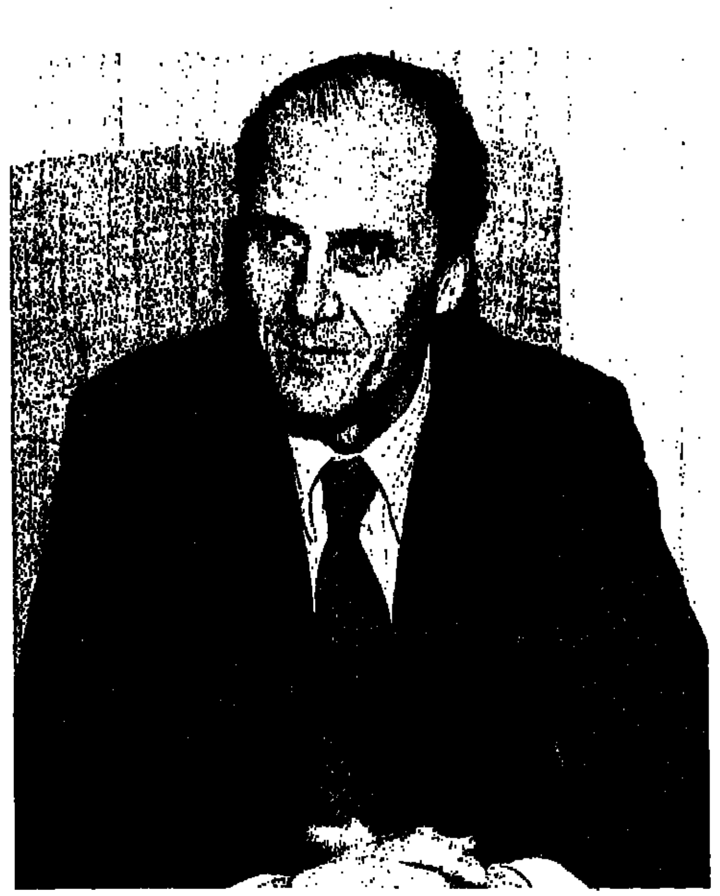
CALIFORNIAN subsidiary of Welwyn-based Stag Electronic Designs has won its largest order for EPROM programmers since it was set up in 1980. The order, from Test Equipment Corp, is for 85 PP28 and PP16 low-cost and ganged programmers worth a total of $300,000. The subsidiary's orders have been filled from the UK, but it is considering starting local production.

Nairobi order

LEATHERHEAD-based bureau Thorncroft Manor Services has won an order from Nairobi City Council for its Web water distribution analysis software package which will be used in planning the city's pipe network up to the year 2000. The package will run on an ICL 2900.

Torpedo system

A SMALL Northants-based systems house has won a £200,000 contract to develop an advanced simulation system for the Royal Navy's next generation of torpedo, the Spearfish. R&H Systems of Wellingborough has been awarded the contract by Marconi Underwater Systems.



TEBBIT . . . set to give the go-ahead to a new national network.

DoE automation may cause 1,200 job losses

by Andrew Thomas

A POWER struggle between two government departments could cost 1,200 civil servants their jobs, if the Department of Employment's plans to computerise dole offices go ahead.

Employment Secretary Norman Tebbit is set to give the go-ahead to an entirely new national network based on ICL 2966 mainframes, to go live by early 1985.

In a report currently before ministers, the DoE is recommending the automation of its unemployment benefit scheme. Although the production of Giro cheques for claimants is already carried out by the National Unemployment Benefits System (NUBS), supplementary and archive information is stored manually in each office.

Although the DoE is supposedly working on a joint plan with the Department of Health and Social Security for the use of computers over the next 10 years, it is keen to gain control of its own hardware.

NUBS is currently run on the DHSS mainframes at Reading and Livingstone, Scotland, and the new proposal would mean the installation of an additional 2966 mainframe at each site with additional hardware including 64 EDS200 disc drives and NPS front end processors.

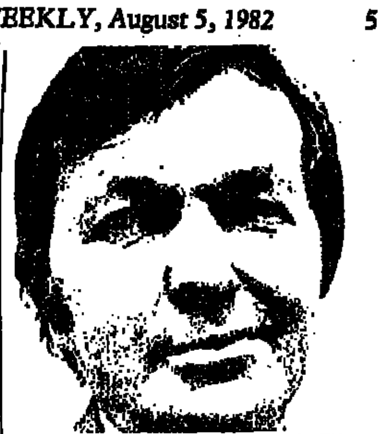
An independent communications network will link the computer centres to the unemployment offices, and will support 3,800 VDUs and 1,500 printers. But the DHSS is keen to maintain control over data processing and is campaigning for a single, unified network.

Running costs of the new system are estimated at £2.03 million for the first year, rising to £3.4 million in the third and subsequent years. One-off costs include almost £4.5 million for VDUs, printers and communications equipment. The annual phone bill for using the system will be between £100,000 and £200,000, and ICL will get £2.4 million in the first two years.

The people whose jobs are at risk are 700 clerical assistants and 500 clerical officers. It is expected that the first redundancies will be announced next year, and the remainder by April 1985. The DoE report claims that a saving of £6.3 million would be made by this reduction in manpower.

Leslie Christie, assistant general secretary of the Society of Public and Civil Servants, believes that the 1,200 staff could be put to better use.

"Many tasks can and should be computerised, but the staff should be redeployed to provide a better service," says Christie. "Any of the three and a half million unemployed will tell you that the service they get can be improved – these 1,200 people could do that."



SKINNER . . . Expanding in Eire.

CAL buys Nexos in Ireland

by Kevan Pearson

THE British Technology Group (BTG) has sold the Irish subsidiary of its ill-fated office systems venture, Nexos, to Surrey-based Computer Ancillaries. The deal gives the company the rights to sell the Nexos 2200 in the Republic of Ireland.

The move is part of the continuing winding down of Nexos' operations. There is one other overseas subsidiary, in Germany, and its sale is imminent. Nexos continues as a trading company, despite the sale of its products to other companies.

Computer Ancillaries will use the 2200 series to expand its operations in Ireland. According to its chairman, Ian Skinner, the new products complement the company's existing range, which includes the Caltext micro and Durango word processor.

As part of the deal Computer Ancillaries also acquired Nexos' Dublin offices.

The BTG has been winding down Nexos for about six months, and Nexos was in serious trouble for about six months before that.

Nexos has now cost the UK taxpayers about £28 million, according to current estimates. In 1981 it lost £4.7 million on sales of only £4.4 million.

Practical look to govt-backed CAD centres

by Robert Parry

SCHEMES to spread awareness of computer-aided design are taking on a practical look. The two government-sponsored schemes, CADCAM and CADMAT, have nine demonstration centres opening, to let potential users try their hand at using equipment. These are backed up by 13 firms around the country where machines can be seen running CAD applications.

The two schemes aim to encourage computer-aided design and manufacture (CADCAM) and computer-aided design, materials and test in the electronics field (CADMAT). They were recently boosted by an extra £12 million to subsidise the purchase of CAD kit.

Grants of up to one-third of capital expenditure are available through the Department of Industry.

Commercial companies are getting in on the act too. CAE International, a joint venture company formed by US firms General Electric and Structural Dynamics Research Corporation, has set up computer-aided engineering productivity centres in Hitchin, Paris, Wiesbaden and San Diego.

Detroit and Tokyo will join the list next month.

Equipment in the CAE centres is used to sell software, with demonstrations and pilot studies for good customers, and to train customers once they have bought. The centres are also used for consultancy work by SDRC.

The Hitchin centre has a Vax-11/780 running mechanical design software, linked to a Calma system. Calma, like SDRC, is a General Electric company. There is also a GenRad mechanical testing system using a PDP-11/34, which is linked to the Vax via DECnet. The systems can talk to the outside world, and key customers can dial in directly.

The productivity centres are "part of GE's factory of the future" says Martin Neads, managing director of CAE in the UK. He sees the awareness aspect, letting customers try before buying, as important. Government schemes in the UK are helping CAE to help its customers, reckons Neads, by increasing the general level of awareness.

"We have applied to get on the Department of Industry schemes, and don't see why we shouldn't" says Neads. "It would be an extra bonus to say to a customer 'Yes, we're on the list', but really we're dealing with big customers, the Rolls Royces of this world, which aren't concerned with the couple of thousand pounds involved."

'Stars winner

IN our report on the UK final of Computastars, it was wrongly stated that the winner of the small unit competition was Butterworth. The winner was the team from Sheffield Insulating, who finished 18th overall.

UK to get first AS 9060

DELIVERIES of two large-scale IBM compatible computer ranges are due to start this month from both Amdahl and National Advanced Systems (NAS). But while the US is greedily hanging on to all the initial batch of Amdahl's 58/60 machine, the UK is to get the first NAS AS 9060.

Amdahl is finally to start shipping its answer to IBM's 3081, but the first 40 systems are earmarked for users in the US. It will be December before a UK user receives one, according to Amdahl UK's Terry Passola.

But British Airways (BA) is to be the world's first customer of NAS's Hitachi built AS 9060 (14 mips), and BA has another machine on order.

HAIMES of SDL . . . astonished that something so obvious hasn't been thought of before.

Canadian firm fills gap in viewdata market

by Donald Kennett

A NEW company has been set up in Canada to take on the job that might have been expected of Prestel International – that of translating between the various national viewdata services to make their information available to each other's users. But the software contract has come back to the UK.

The company, Teltrix Videotex International of Toronto, has signed a $155,000 contract with Camberley-based Systems Designers through its New York subsidiary SysDes to develop the software for the first phase by the end of the year.

The first phase covers translation between Prestel-compatible systems and systems based on the Canadian Telidon viewdata specification. Later phases will add the French and Japanese viewdata formats to the capabilities of Teltrix's Textvision service and will establish nodes in London, Paris, Tokyo, Toronto, New York, San Francisco and Chicago.

The contract for these later stages of the work is expected to be worth between $600,000 and $1 million, and SDL stands a good chance of getting it.

The idea has been developed over the last two years by Canadian Tony De Liberato and his partner Ed Cavalier, and Teltrix was incorporated a year ago. Despite which, Computer Weekly found both the office and De Liberato's home telephone numbers out of service.

This did not worry SDL's information systems division manager Alan Haimes, however. "We were introduced to them by some fairly influential people," he said.

"I think the service is quite novel," he added, "And I am astonished that something so obvious hasn't been thought of before. They've got some very smart ideas – that doesn't mean they're going to make a million, but they've got some very smart and determined people behind it."

ICL adds CP/M to its DRS 20 micro range

by Maggie McLening

ICL has jumped on the CP/M bandwagon to boost the software available for its DRS 20 range of microcomputers.

From September, users of DRS 20 40 and 50 distributed resource systems will be able to run any of the off-the-shelf packages written for CP/M, greatly widening their choice beyond the confines of ICL's own and third-party software schemes. Increasing numbers of microcomputers have been installed on ICL sites, for a variety of reasons, and this is the market that ICL hopes to recapture in this latest move.

"This means we can offer a single-supplier solution, incorporating both compatible growth paths and communications links to ICL and non-ICL mainframes, to those large organisations whose efficient use of data processing resources is threatened by the proliferation of incompatible, standalone micros in user departments," said Ninian Eadie, director of the product marketing division.

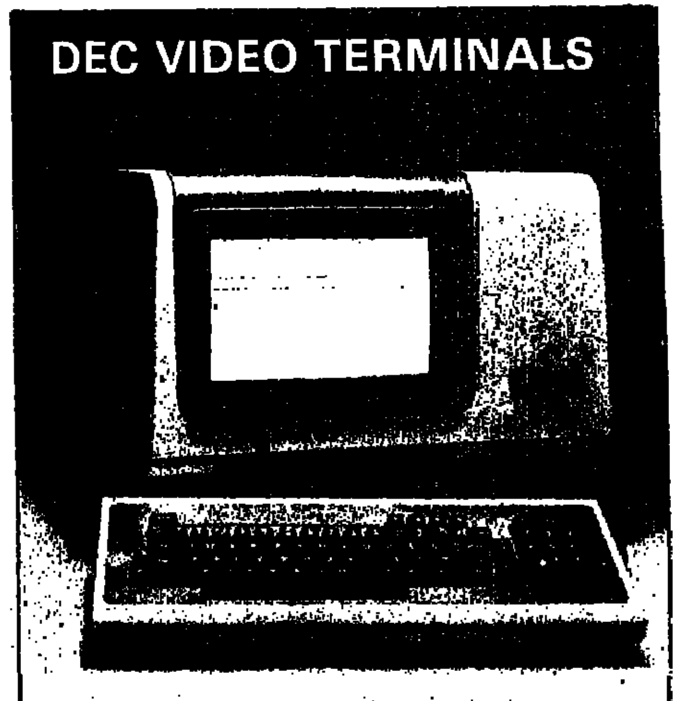
According to Chris Swinbank, a director of Hytec Microsystems, software restrictions may not have been the only reason why other manufacturers' micros have been installed.

"On many of the sites we have come across it has been a question of protocols," he said. "You have to have CO3 to be able to link with a DRS 20 machine, which effectively limits the system to one installed within the last two years or so, or to ME29s or to the VME/B operating system. It is possible to have CO3 on virtually any ICL mainframe, but after people have spent time developing a system under previous protocol systems, CO1 or CO2, they are hardly going to want to change it to CO3."

Hytec Microsystems has installed over 600 of its H4000 range of systems in ICL user sites over the last 18 months, and current sales are running at between 90 and 100 a month. The H4000 microcomputers offer a choice of CO1, CO2, and CO3 protocols, and the opportunity to link with Honeywell and Burroughs equipment.

"We hoped that ICL's launch of the DRS series would stimulate the market for this type of system, and this is exactly what has happened," said Swinbank. "Some users have also found it difficult to get hold of the hardware, and long waits for ICL equipment have obviously helped us to sell ours."

A spokesman for ICL denied that there had been delays in supplying DRS 20s but declined to say exactly how many had been sold. Several large orders have been announced, notably in the areas of banking, electronics, engineering and local government organisations in Europe, Asia, Australasia, Africa and North America, but no overall totals apart from "several thousand" have been quoted.



DATAFLOW

A US professor has adopted an unconventional new approach to array processing . . . Hedley Voysey explains

HT Kung is upsetting the applecart with the new heart of a machine

UPSETTING traditions is always exciting, and HT Kung is producing a fair amount of excitement. Kung is at Carnegie-Mellon University in the US and the upset concerns the relationship of processing elements to memory.

The conventional method of jamming large numbers of processing units together to achieve vast amounts of processing power involves providing large quantities of memory to feed all the processors. Not so with Kung's designs – his style of systolic arrays provides millions of operations per second from relatively small amounts of memory, but carefully meshed special purpose processor designs.

The label "systolic" derives from the action of the heart that pumps blood through the body. It is not astonishing to discover, therefore, that Kung's designs pump a stream of data through a "black box" (a series of special processors) and at the collecting end emerge a stream of results.

Kung started to propound such approaches some four years ago as a way of making the most of the opportunities offered by new design techniques available via silicon foundries fabricating Very Large Scale Integrated (VLSI) chips.

In 1982 interest has surged because working systems exist. The application opportunities are based on areas of regular computing, so it is obvious that prime candidates are voice and vision related "black boxes" able to deal with the heavy computation needed for digital signal flows captured in digitised speech and image systems.

Other regular computational opportunities exist in sorting disc files and aiding database reconstruction and interrogation. Kung has started an enthusiastic hunt for specialist niches where his systolic arrays can be bolted-on to conventional machines to jack up the effective performance.

The stunning part of Kung's recent presentation to the International Workshop on VLSI at Edinburgh University (which was sponsored by the Scottish Development Agency and the Science and Engineering Research Council) was the news about a delivered system to TRW.

The basic machine used is a Digital VAX 11/780 and Kung jokes that "there was more trouble in interfacing to it than building the systolic array for vision processing. This via seven key chips is capable of about 28 million operations per second, but geared to the VAX it actually delivers about 20 million operations per second."

The effort so far with Kung's designs has gone into organising the application derived signals into the mathematical sequences that enable the pumping of operands to be uniformly processed.

Professionals who have understood the rough aim of the new (well, about a decade old) dataflow architectures – which provide a network of processing power which functions when the appropriate operands arrive at a processing point in the network – will recognise that systolic arrays are an extreme form of the dataflow design. Extreme in that the machine is essentially addressless.

In the US, California-based ESL has proved the systolic array method as a natural for high performance digital signal processing, because of the extensive use on inner-product operations.

The staff claim that systolic methods are appropriate wherever problems can be expressed in numerical linear algebra, and this includes radar and communications patterns generally. The snag on serial processors is that the heavy computational load stops the system working in real time.

This is a severe problem in some speech recognition applications, for instance, as well as image processing. The gain in speed for systolic methods is delightfully matched by their comparatively low need for input and output bandwidth, or data transmission capacity.

> **Kung has started an enthusiastic hunt for specialist niches where his systolic arrays can be bolted-on to conventional machines to jack up the effective performance**

There is still plenty of life in achieving signal processing gains (without which there will be no seeing and hearing computer based robots, for instance,) using bit-serial designs. At Edinburgh University Peter Denyer presented the special-purpose "silicon compiler", built at Edinburgh by himself and colleagues for just such work.

The bit-serial approach cuts down the overheads involved in both control and communication, which makes most of the valuable silicon area on the chip available for proper computing work. The University achievement here has been called First, standing for Fast Implementation of Real Time Signal Transforms – and it truly supports a high-level system description language derived from a flow graph of the system to be placed on a chip.

The compiler composes a complete chip layout to handle all the operators described in the flow graph and also completes the network routing involved. So, for this special class of chip it forms a usable silicon compiler currently working in a five-micron technology running up to eight MHz in speed.

What remains to be done within First is to implement aspects such as generating test patterns automatically, which is possible because all the operators are described in two ways: first geometrically, and secondly in a functional or behavioural way. There is a simulator which is driven from the same input file as the compiler for the chip mask.

A practical result has been a set of chips for adaptive speech echo cancellation, a process essential to speech input processing on a reliable basis.

While much of the action in hurling new designs into silicon centres on the crucial piece of the action formed by signal processing, there is also a good record in the US of building silicon compilers for semi-conventional aspects of computer architecture. But they tend to cluster round the need to support Artificial Intelligence (AI) developments.

It is well known that the workhorse of much of AI community is the Lisp language and this has led the Massachusetts Institute of Technology to build a Lisp machine; and in turn, Symbolics, for instance, is commercially delivering souped-up versions of this type of special-purpose engine for performing Lisp work.

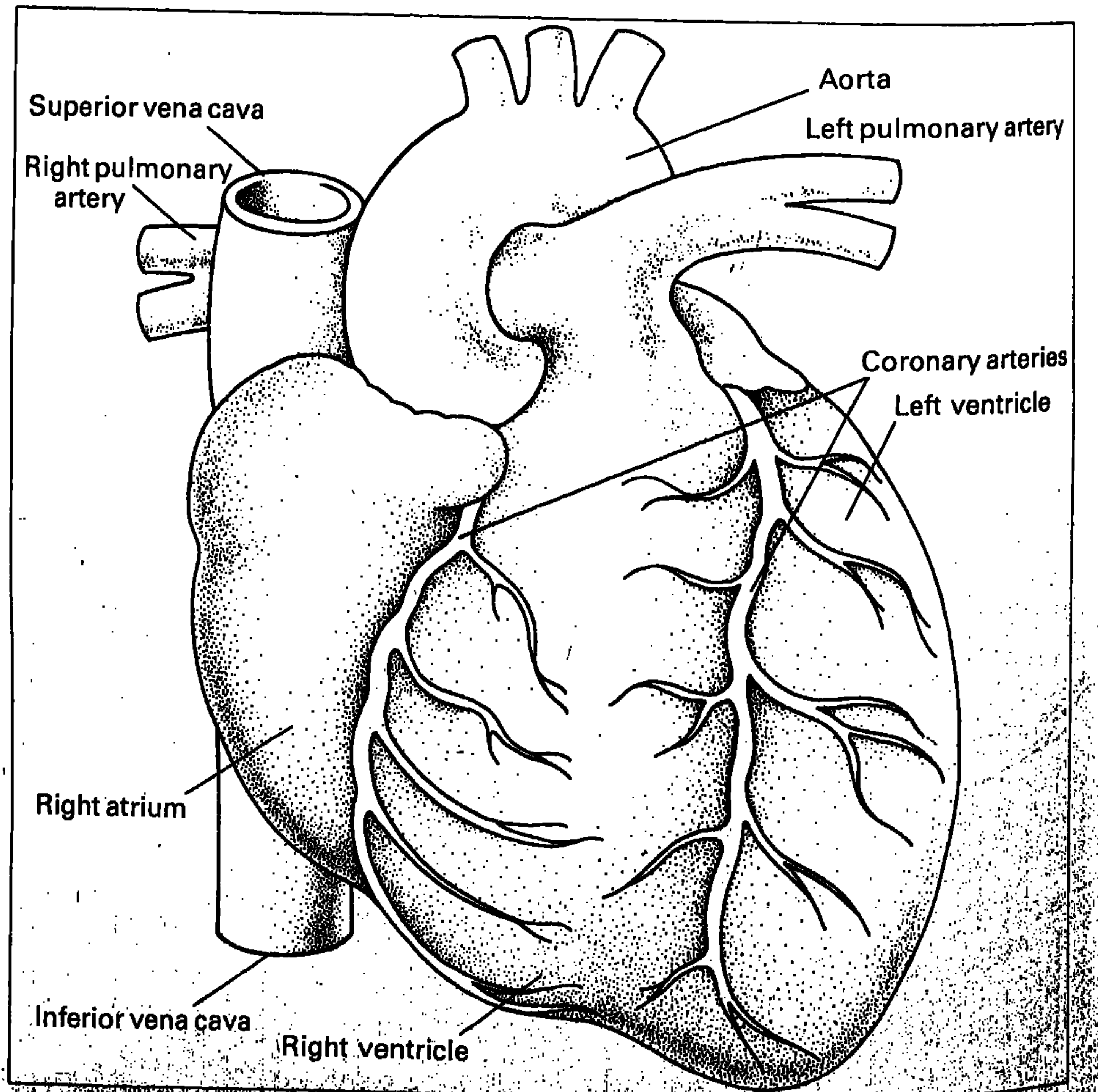
Meanwhile, back at MIT, Gerry Sussman has been trying to squeeze a Lisp machine on to a single chip. This apparently daunting task looks like coming to a successful end, by the narrowest of margins. The interest however is centred on the design system built to do the job, which is a complete set of tools forming, as a whole, a silicon compiler of great attractions.

To complete the confounding of the sceptics, Howard Shrobe of MIT, who presented the system at Edinburgh, admits to knowing practically nothing about electrical circuit design when he started this work. Shrobe claims that "I am an AI person and I hope to get back to working in AI very soon", and he admits that at the start he consulted with Lynn Conway of Xerox's Palo Alto Research Centre.

Conway was asked whether a knowledge purely based on studying the Mead and Conway book on VLSI design was sufficient. The answer was a reassuring "yes" from Conway, and Shrobe's work for the Sussman project is a dazzling demonstration that chip designs can be derived from computer scientists, as well as fully trained electrical engineers – especially if knowledge of computer science forms a key portion of the objectives in building a new chip.

The chip design produced is teetering on the brink of the practical limits for current technology in fabrication, since it is about one centimetre square. There will be many designers who will take the trouble to examine the MIT tools used in the design process very carefully, since although they are by no means universally applicable, they show the way forward for special applications dealing with combinations of complex control states in computer design.

The neat trick with silicon compilers would be to adapt them at will to changes in both technology – that is from NMOS to CMOS, say – and also to adapt them to changes in the process methods used in any given technology.



Is the heart a prototype for a new kind of array processor? [illegible]

SOFTWARE FILE by Maggie McLening

Newcastle Connection spreads the Unix net

by Robert Parry

NO, not a football team. Unix United, otherwise known as the Newcastle Connection, promises transparent user access to distributed systems running under Unix operating systems.

A software subsystem developed in the computing laboratory of Newcastle University, it is incorporated into a set of standard Unix or Unix look-alike systems and allows them to be connected together into local or wide area networks.

Exploitation of the Newcastle Connection is to be co-ordinated by MARI, the Microelectronics Applications Research Institute. MARI is part-owned by the University, Newcastle Polytechnic, and CAP. London-based software house Logica is expected to be the first to supply it commercially to end users, as an extra feature for its Unix implementation Xenix. Logica will install an evaluation system next month.

A distributed system using Newcastle Connection software is indistinguishable from a conventional single system as far as the user is concerned. Inter-processor communication is hidden from the user, who can access devices on the network – within the normal Unix password control constraints – as though they were part of his own system.

No particular network hardware is specified. As no modification of the Unix kernel or applications programs is needed, the set-up can be used with any Unix-like system compatible with the original Bell Laboratories Unix at system call level. Different Unix implementations can be mixed in a Unix United system.

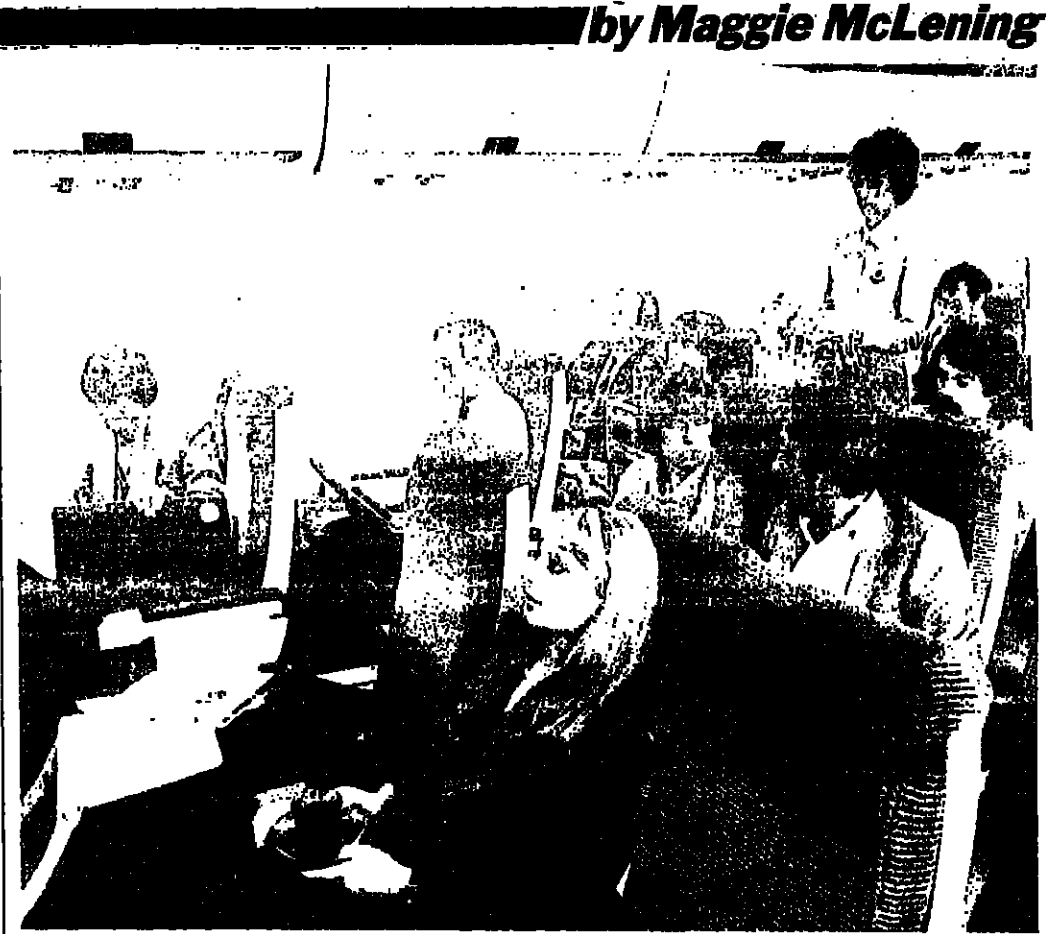
"That's the beauty of it," says MARI's general manager Bob Cooper. "Provided we're talking about genuine Unix or Unix look-alike systems we can talk across anything. It really doesn't matter what network is used, as we are sitting on top of the communications."

The original implementation at the University of Newcastle is running on a Cambridge Ring, but only because that happens to be the network used there.

Logica will install a system for evaluation in London, to see what needs to be done to turn it into a real commercial product. The system will probably be fitted early in August, says software products group development manager Adrian King, the delay being due to a move of offices.

Cooper reckons the Newcastle Connection will be available in the marketplace in about three months' time. After Xenix, he expects applications to other Unix-like operating systems to appear, possibly led by one for Idris, the Unix look-alike marketed by Real Time Systems based in Newcastle.

A case of another Newcastle connection?



Airline catering company sets up computer links worldwide.

Flight catering company sets up international network

AIRLINE catering specialist Marriott In-Flite is to computerise its accounting and stock control systems with an eventual international link of its branches.

The parent company, Marriott Corp, is setting up the network which will link branches in the US, South America, Spain, Lisbon and the UK sites at Heathrow and Gatwick.

An IBM System/34 has been installed at Heathrow, and an MDS Series 21 microcomputer will be used at Gatwick to provide data entry facilities, using an IBM 3741 emulator. Software for the system is being developed by Compass Software in Holborn.

"We shall be developing data entry systems for purchase and sales ledgers, written in Mobol, MDS' own language," said Tony Mangin, project manager. "There will also be a standalone inventory system with a keyboard in the warehouse, so that orders and supplies can be recorded on the spot."

Mobol is a very powerful language, particularly for screen handling, which is similar to Cobol in that the programmer defines the shape of the files in a data division. It is much simpler to use than Cobol, because Mobol does more with less code, so the procedure division does not need to be flow-charted, according to Mangin.

Marriott In-Flite is responsible for producing some four million meals a year, and provides food and drinks services for 26 airlines, including TWA, British Caledonian, Delta and Quantas.

SOFTWARE BRIEF

New Pascal compiler

PROSPERO Software has introduced a new Pascal compiler to enable users to make full use of the NEC PC-8000 microcomputer's facilities, including colour and graphic functions.

Pro Pascal provides for 16-digit floating point calculations, and costs £190 for the compiler and a further £19 for user manual. It runs under CP/M and needs at least 48K RAM and two 120K disc drives.

Screen editor

MAINFRAME-LEVEL editing is now to be offered on the family of Prime minicomputers, with the launch of the EMACS online screen editor. Developed by the Massachusetts Institute of Technology, EMACS supports Fortran IV, Fortan 77, PL/I, RPG II, Cobol and Pascal and gives the user the ability to redefine editing functions at will and assign them to almost any key on the terminal.

Five-day course

REAL TIME system design and implementation is the theme of a five-day workshop to be held by BIS Applied Systems from August 9-13. Delegates, who may have any level of experience from analyst to project manager, will discuss justifications for communications systems and be trained in balancing the design within technical constraints. Cost of the course, which will be held in Eastbourne, is £615 plus VAT.

Fast translation

A COMPUTER-assisted translation service for technical documentation in English, French, German or Spanish is now being offered by ITT's Europe Engineering Support Centre. The centre has installed a Weidner machine translation system, claimed to be five to 10 times as fast as manual translation.

Wordcraft for 64K micros

ONE of the best-selling word processing packages for microcomputers, Wordcraft, is now available for the Commodore VIC 20. A version for the 64 Kbyte machine will also be ready when Commodore launches it in the UK later this year.

Both products have been announced by Reading-based manufacturer and distributor Audiogenic, which has previously dealt exclusively with the games and education market.

"Nobody took the VIC seriously when we decided to produce this – even Peter Dowson, author of the original Wordcraft package, laughed when we told him," said Martin Maynard, managing director of Audiogenic. Dowson has since written the VIC version Wordcraft 20, and is also to develop version 40 for the 64K microcomputer.

"This is an exact derivative of the larger system, so it will be totally compatible," explained Maynard. "It was a question of reducing the size of the program to fit on a 16K RAM without losing too many of the facilities, and in fact very few have been removed, such as sorting and totalling. The package does have file merge facilities though, which many others don't and data encryption options."

Audiogenic, which is the UK representative of UMI, Creative Software and Wordcraft Systems, has received over 500 advance orders for Wordcraft 20, and is busy commissioning the development of further variations on the basic package.

"We have been asked to produce a Hebrew version with all the characters going backwards, and the French need a machine with a different keyboard layout," said Maynard. "Typecraft is also producing a journalist kit using our system as a base with a VIC in a suitcase to produce copy that can go straight into typesetting. You can't really go wrong with this type of system, when you think that the VIC plus word processing costs only just over £325."

MAYNARD . . . Asked to produce a Hebrew word processing package.

MicroCobol and BOS on 16-bit micros

CAP offshoot Micro Products Software is to implement its MicroCobol and BOS operating system on 16-bit microcomputers. It will start with the ACT Sirius machine.

Micro Products Software has already installed its development tools such as Autowriter word processing, Autoclerk report generator and Autoindex enquiry, and a full range of integrated applications software on over 40 different 8-bit machines.

BOS rivals Unix in its portability and handling of multi-user applications, with a strong backing of commercial software.

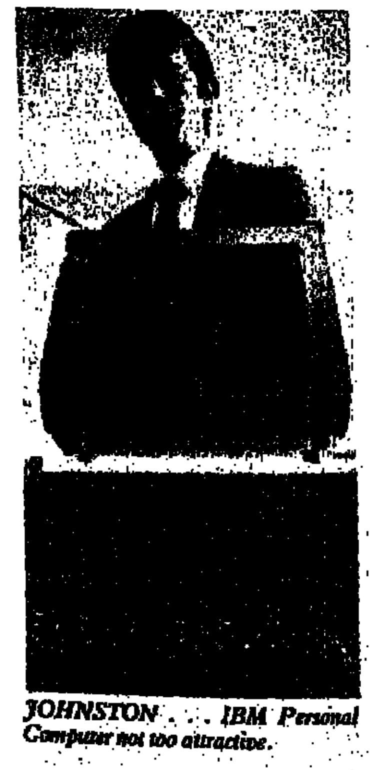
According to John Johnston, software director of MPS, adapting BOS to run on new machine is largely dependent on the type of processor in the machine.

"Portability is achieved by rewriting 'nucleus', the middle layer of Assembler code in the operating system, to interface with a different processor," he explained. "BOS is easier to amend than most systems because there are very clear levels of distinction between areas of machine dependence."

Rewriting nucleus usually takes about nine months, and after that producing device drives and a bootstrap takes up to six weeks, depending on whether the system is single or multi-user.

The Sirius implementation will be ready within the next week, and MPS is also working on networking using Apple II machines, with a Corvus disc, and BOS-NET software. But it does not intend to launch a product for the IBM Personal Computer until it is officially available in the UK.

"The IBM machine is not too attractive because there is insufficient memory for running a sensible system on it, with diskettes of only 150 Kbytes," said Johnston.



JOHNSTON . . . IBM Personal Computer not too attractive.

by Robert Parry

Rebate assessment on Apple linked to Walsall Council's ICL mainframe.

Pet links to ICL mainframes save time and money

MICROCOMPUTERS linked to mainframes are becoming more than just replacements for dumb terminals. Nottinghamshire-based mining engineering company Dosco has linked up 15 Commodore Pets to its two ICL ME29 mainframes in a way that allows users to access the mainframe from within programs running locally on the PET.

The Dosco set-up uses the communications controller and emulation software from Derby microcomputer specialist Davidson-Richards. The installation is important for Davidson-Richards as it is one of the largest, according to managing director David Goodley.

But perhaps more importantly Dosco has made good use of the basic interface.

"They have done something rather clever really," says Goodley. "Allowing users to run programs locally and access the mainframe means programs can be developed locally and, when they are ready, can be linked with existing programs on the mainframe. This should avoid much of the mainframe response time degradation during program development."

The interface software written at Dosco allows data from application programs like Visicalc, the financial modelling program, to be transfered into files on the ME29 and thus into the general ledger system.

Financial modelling was one of the initial reasons why Dosco moved to microcomputers. The first Pet was installed in September 1981.

The Pet/Davidson-Richards system was one of the few things around that fitted the bill, says Dosco's data processing manager Michael Dobson.

ICL's Prosper package had been considered for the budgeting and financial planning, but was thought to be rather over the top in terms of what it could do.

A lot of features were not needed and it made heavy use of the ME29. The Pet solution, complete with software, enabled Dosco to save over half the £10,000 or so Prosper would have cost.

● While Commodore is in on the mainframe links in Nottinghamshire, arch rival Apple has 50 microcomputers integrated with an existing ICL mainframe records system in Walsall.

Apple dealer Westwood Computers has solved a problem for Walsall Metropolitan Borough Council by linking Apple II systems in local offices to a central ICL mainframe.

In November a new unified housing benefits scheme will be introduced, and the council saw a huge rise in rebates and allowances to be calculated. Westwood developed a dedicated interface device to run within the assessment program to access mainframe files, which contain established housing and rates records.

Trading on a name

WHAT'S in a name? Potential embarrasment it seems, when it is attached to different products from separate companies.

US semiconductor giant Intel and UK minicomputer manufacturer ABS Computers of Woking have both been using the name Multibus: Intel for its microcomputer board interconnect system, ABS for its range of minicomputers.

The problem was that ABS owned the rights to the name in the UK, France and Germany, while Intel owned them in the US. (Intel the semiconductor house that is, not Intel the hotel chain or Intel the connector manufacturer, or Intel the . . . .)

But things are being tidied up. ABS and Intel have come to agreement in principle to transfer the name from ABS to Intel, in return for a financial consideration.

"It's going quite well," says ABS managing director John Elsden. "We haven't reached a conclusion yet, but we just need to agree details."

There is no urgent rush, says Intel, noting that discussions have been going on for some time. Elsden adds that the ball is in his court at the moment, as far as suggesting suitable terms. These will include payment in kind as well as a sum of money.

To add to the confusion, ABS is a considerable user of Intel products — including Multibus (Intel's) cards. Elsden expects to get more favourable rates than the normal quantity discounts in return for giving up the Multibus name.

"We have been using Multibus (as a name for our minis) since 1972," says Elsden. "But we stopped using the name recently. There has not been any aggravation, but it could have caused a significant problem if we hadn't got to grips with it."

The name ABS phased in for its minis is the MX Series. It stands for Multibus extended.

So it goes.

ELSDEN . . . Multibus transfer.

'Optical discs no threat to floppies in memory market'

OPTICAL discs are on their way, but most of the mass storage memory market will stay on magnetic media. By 1984, when the first commercial optical disc storage systems are expected to appear, floppies will top the billion dollar mark in sales, with over 50% share of the memory media market — a share which will be maintained through to 1990. Then Winchester hard discs will take 30% of the market, but optical discs only about 9%.

These predictions come from US market research company International Resource Development*, which sees the leading position of floppy discs being maintained with the help of an upsurge of interest in the microfloppy drives, which use discs of about 3 to 3½-inch diameter.

Media manufacturers, particularly Sony, Hitachi and Maxell, are gearing up to supply discs to this new area of the market says the report, and leading disc makers Verbatim and 3M are expected to follow quickly to get in on the act.

The 3½-inch drives will mainly be fitted into personal microcomputers, where low cost and robustness of the discs — which in all the contending systems have rigid cassettes around the actual floppy disc — will be telling features.

Verbatim is currently leading the floppy media market, displacing IBM which pioneered floppy discs and led both the disc drive and media markets for years. Verbatim's sales of discs under its own name are bolstered by sales of discs it manufactures but which are marketed as "own label" products by office supply stores and mail order outlets.

But the report warns that the leading manufacturers of discs are under attack from new technologies. "It is the big boys who are running scared," says IRD's Ken Bosomworth, who reckons BASF, 3M and DuPont are threatened by discs using ultra-thin metal coatings on new substrate materials.

He suggests the race may be between Japanese manufacturers, particularly Sony, and a new set of start-ups in America's Silicon Valley.

In the optical disc field, the leader in the disc media market looks like Drexler Technology. But so far most sales have been evaluation kits to optical drive manufacturers.

Researchers are still looking at various materials for optical disc recording layers and substrates, and the problems of what materials and what recording techniques to plump for are proving troublesome to the aspiring optical drive manufacturers.

The experimental disc media are suffering from high error rates, but planned shipment dates mean that the drive manufacturers will have to go one way or another soon if they are not to be left behind, the report states.

Options for recording media include metals — tellurium, gold, silver, platinum, selenium and bismuth all being considered — and organic polymers that absorb the laser light used to write information to the disc. Substrate choices to carry the recording layer include aluminium, glass and Teflon-based polymers.

But when the optical discs start to come on to the market around 1984, they will find an important market niche for archival stores. The discs planned by Shugart, for example, will start off at 1,500 Mbyte capacity, rising to 5,000 Mbytes.

They will in general be non-erasable, since the recording techniques being investigated mainly involve vapourising small areas of metal or creating blisters in the metal surface. That will fuel the supremacy of floppy discs in the market, according to Shugart.

Shugart expects to see large capacity floppies coming on to the scene to act as storage for everyday transactions, with archival storage on the optical discs.

The IRD report predicts a steady rise in the Winchester disc market share, to reach nearly 30% by shipment value in 1990.

* Optical and magnetic disc media, IRD, 30 High Street, Norwalk, CT 06851, USA.

by Kevin Cahill

BTG sits on a 300% profit at Decision Data

EMBATTLED it may be but the British Technology Group is not making losses on all fronts.

The American company Decision Data, in which the BTG has an effective 40% stake through its wholly-owned subsidiary Data Recording Instruments, has continued on its recovery path with profits for the second quarter at $902,000, 97% up on the corresponding quarter last year.

Turnover at the US subsidiary, which makes a range of IBM-compatible terminals and printers, shot up smartly by 51% over the same quarter in 1981, to reach $17,952,000.

The turnround from losses which began in 1980 has now been maintained for six quarters, and the quality of the recovery seems solidly based as sales of the company's new IBM-compatible terminal, the chief vehicle of the resurrection, keep pace with management predictions.

Commenting on the six-month figures which show sales of $34.1 million, a rise of $12 million on the first half of 1981, Richard J. Schineller, Decision Data president, said he expected continued improvement for the remainder of 1982.

Schineller, the architect of the company's recovery, has maintained a close relationship with the BTG since the UK government backed body put $7m into the then ailing Decision Data in 1980.

In return for the investment, the BTG's agent Data Recording Intruments received 15% of the Decision Data stock and an option on a further 25%.

At the time of the investment the Decision Data stock was trading at about $2, the option price DRI paid.

With the Decision Data stock now over $8, the BTG is sitting on a book profit of 300%.

Faced with growing parliamentary concern about the fate of the £32 million that the United Peripherals operation at Winsford appears to have cost DRI, and the need to prop up that company's balance sheet with a cash injection of £12 million from the BTG, commentators are beginning to wonder how long before the government forces DRI to divest itself of both UPL and its holding in Decision Data.

SCHINELLER . . . . Continued improvement.

Wang joins the billion dollar league with sales up 35%

A MIXED BAG is the verdict on the rash of yearly and half-yearly results being published by many US computer companies. One of the best shows came from Wang, which at last pulled off its long-term goal of becoming a billion dollar company.

The corporation pushed sales for the year ended June 30 to $1.13 billion, a 35% jump on the previous year's total sales of $856.4 million.

Alongside the surge in sales, the company also managed an impressive 37% hike in profits from $78.1 million in 1980/81 to $107 million for 1981/82.

Long one of the most ambitious of the Boston-based mini manufacturers, Wang is known for its aggressive marketing style.

The company has overtaken many of its rivals, partly because it spotted the trend towards specialisation, in the form of word processing, early on, and partly because it has been lucky in not suffering any serious reverses in the past two or three years.

An Wang, company chairman, said he had found fiscal 1982 "difficult for the economy and for many of our competitors." He also revealed that orders in the company's fourth quarter ended June 30 were up 40% on the corresponding quarter of 1981.

Orders for the full year, as opposed to sales, rose to $1.325 billion, implying that the company is going into 1982/83 with well-filled order books.

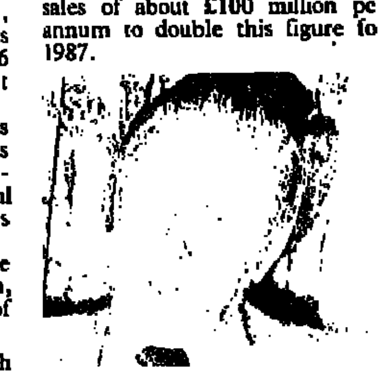
In the wake of Wang's results comes good news from Burroughs, where the recovery continues apace with profits back to $63.6 million for the half-year just ended.

This is 19% up on last year's admittedly depressed earnings which followed huge write-offs initiated by Michael Blumenthal when he joined the company as chairman.

Sales, which now include Memorex, reached $2.05 billion, up $560 million on the first half of 1980/81.

Control Data Corp, the fourth largest computer company in the US has seen a sudden 21% slip in quarterly earnings. Sales for the quarter just ended rose to $1 billion, but profits slipped from $43 million in the same quarter last year, to $34 million.

In the UK, however, Fred Mobbs, Control Data UK managing director, reports a 45% increase in pre-tax profits for the first half of this year. Profits were £4.8 million for the half and Mobbs says that he plans to push the UK company from current sales of about £100 million per annum to double this figure for 1987.



MOBBS . . . Pushing CDC's UK sales.

NonStop slows down

THE astronomical growth rate achieved by NonStop computer manufacturer Tandem over the past years is at last beginning to slow. But third quarter earnings for the period ended June 30 were still up 50% to some $84.5 million compared to the same quarter a year ago.

Tandem has regularly doubled its revenues quarter-to-quarter, but as its base gets bigger that kind of growth becomes more difficult to achieve. James Treybig, president and chief executive of the US-based company, said business remained strong in most regions, although orders had been delayed in parts of North America and Europe because of their weak economies.

And the financiers take a view similar to Treybig's.

ITOM International, a research institution based in Los Altos, California, is predicting a worldwide $22 billion market in 1986 for fault tolerant systems like those produced by Tandem.

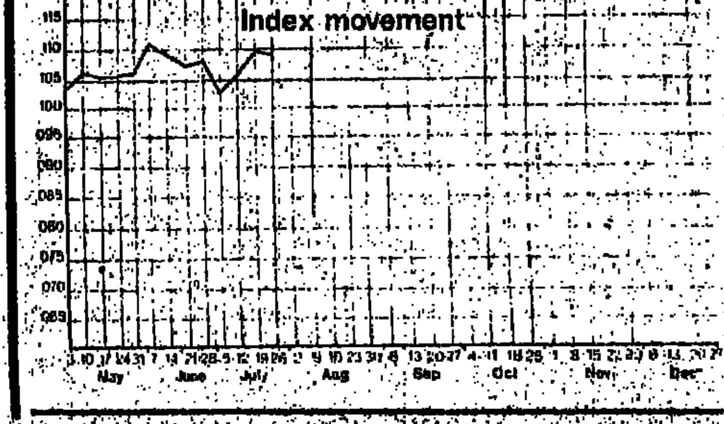
Of this, ITOM predicts that less than 15% will go to existing fault tolerant vendors. The bulk of the beneficiaries would be companies selling conventional systems which are run back to back or in redundancy configured systems.

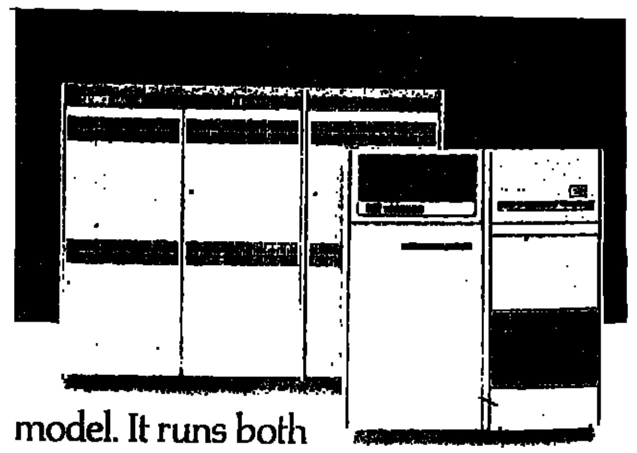
CW SHARES TABLE

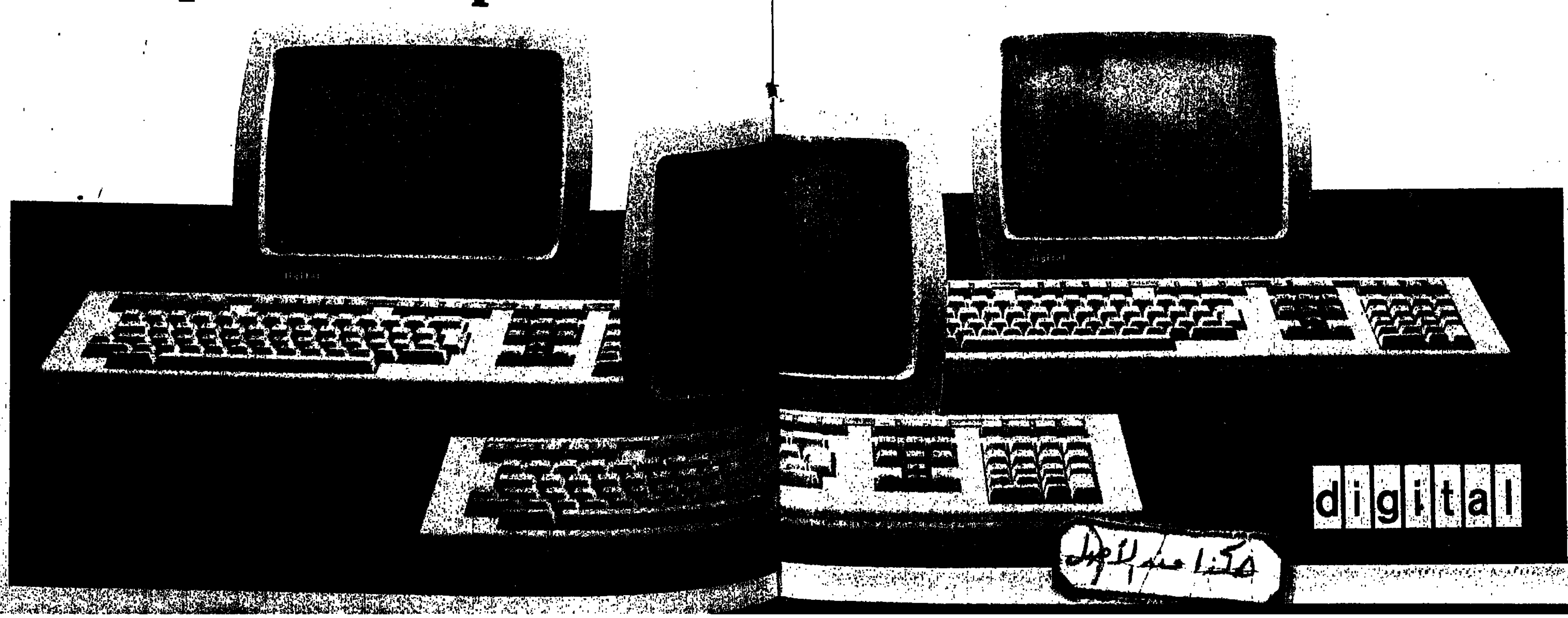
Date 30/7/82 Index 108.77 Change -1.16

Pence		London Stock Exchange	Pence		$		US Stock	$	
1982		Stock	Price	C'nge	1982		Stock	Price	C'nge
High	Low				High	Low			
203	151	ACT (App Coml (25p)	203	+ 6	29¼	18	Amdahl	20¼	- ¼
180	150	BOC Int (25p)	174	- 6	20¾	11¼	Apple Inc	12¾	- 1½
30	18	B. Bov Kent (25p)	30	-	28	22¾	Auto Data Pro	23	- 1½
127	101	Chubb (20p)	116	- 6	37¼	30¼	Burroughs	32¾	- ¾
94	48	Cole Group (25p)	88	-	13¼	7¾	Comp Auto	8	- ½
303	233	C.A.S.E. (20p)	273	+ 1	16	11¼	Comp Sciences	13	-
730	445	De La Rue (25p)	475	- 25	15½	12¼	Comshare	12½	-
380	235	Extel (25p)	340	-	35½	23	Control Data	25	- 1¼
850	625	Ferranti (50p)	835	- 15	35¼	21¾	Cray Research	23½	- 1½
1087½	787	GEC (25p)	1075	- 12½	63⅛	24¾	Data General	25	- ¾
64	33	ICL (25p)	59	- 6	49½	12	Datapoint	13¼	- 1⅛
47	41	Kalamazoo (10p)	43	-	24½	16½	Dataproducts	17¼	- 1⅜
310	223	Kode Int (25p)	300	- 5	87½	68¾	Digital Equip	68¾	- ⅜
305	216	Memec (10p)	290	- 8	28	19¾	Elec Data Sys	26¼	- ½
170	110	Muirhead (25p)	168	- 2	6½	3½	Gen Automation	3½	-
284	218	N'market (1981) ($ 05)	245	- 5	38¾	22	Harris	28½	-
820	670	Norsk Data	890	+ 10	48¼	38¾	Hewlett-Packard	42⅞	- 3¼
380	285	Office & Elect (25p)	380	+ 5	78	63	Honeywell	68	- ¾
640	445	Philips Lamp (fl10)	507	+ 7	33¼	20¾	Intel	27⅞	-
628	348	Plessey (50p)	623	- 5	66¾	57	IBM	66½	- ⅛
87	25	Quest Auto (10p)	35	-	58	38½	Litton Ind	41¾	- 1½
488	383	Racal Elect (25p)	488	-	13¼	9⅜	MDS (Mohawk D)	12¾	- ⅜
250	171	Rediffusion (25p)	225	- 6	24	15	MSA (Mgmnt Sci)	21	- ¾
488	396	Thorn-EMI (25p)	475	+ 7	18¼	9	Mngmnt Assist	9	- ¾
90	74	UC&T (50p)	87	+ 2	8¾	6¾	Modular	7½	-
					68	50¾	Motorola	66½	- 2½
					24½	15¼	National Semi	20	- ½
		OTHER MARKETS*			65¾	40½	NCR	62¼	+ ¾
					26¾	17¾	Perkin-Elmer	18¼	- 1½
80	80	Bus Comp (10p)	80	-	23⅞	18½	Prime	17⅞	- ½
667	415	Comp Serv (C1)	461½	-	40	29¾	Raytheon	38¼	- ½
187	78	Consult (C&P) (10p)	187	+ 5	26¼	18¾	Signal	18¾	- 1⅜
262	248	Io Tech (25p)	260	-	34	21	Sperry Corp	21	- 1
60	52	Knight (5p)	62	- 2	34½	18	Storage Tech	18	- 1½
121	112	Miles 33 (10p)	120	+ 3	29½	16	Tandem	18¾	- 2¾
170	110½	NMW (C1)	110½	- 5	38	27	Teledy	28½	- 1½
104	43	Rolfe & Nolan (10p)	102	- 2	83¾	70¾	Texas Inst	80½	- 3⅛
120	76	ScanData (10p)	115	- 5	27¼	12½	Tymshare	12	+ 2¼
230	150	Star Comp (10p)	230	-	35¾	27	Wang Lab B	27¾	- ¼
105	88	Trident Comp (10p)	88	- 2	10½	7½	Wyly	10	- ½
112	78	Zygal Dyn (5p)	110	- 2					

The table shows the closing prices on Thursday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.
**Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*







SYSTEMS THOUGHTS

What we should teach in the information era

Anne Leeming lectures at the Centre for Business Systems Analysis at City University. She is also a consultant on microcomputer systems.

AT a recent meeting of information systems teachers,* discussion was quite heated about what we should be teaching.

Should we be training practical systems analysts and designers capable of designing computer systems to specifications developed by outsiders? They should, of course, have at their fingertips all the current techniques of hardware and software selection and design.

Alternatively, at the other end of the spectrum of choice, should we also be educating people to understand the underlying concepts of information systems so that they can understand all the implications of what they are being trained to design?

Are we educating the right people and all of them?

We reached agreement rapidly on the future extent of computerised information systems. Because of the spread of cheap computing machinery at all levels, our society is going to depend heavily on the computer for the storage and distribution of information that will be vital for our everyday existence, whether we like it or not.

Many of us already have data about ourselves stored on a computer and we do not know what that data is. It is to be hoped that the proposed data protection legislation will do something to clarify everybody's rights and obligations in this area. However, the essential point is that all of us will be users of information systems; some of us will be designers of the information systems of the future; some of us will be managers or, better word, promoters of information systems.

The conclusion we came to, in view of this enormous spread of information systems that we envisaged, was that everyone should be taught about the information systems of the future. The development of this education is well under way and we are seeing a portion of the relevant computer education happening in many schools at the moment.

Of course teaching people to program is only part of the task, albeit a very important part as, by getting their hands dirty, students realise something of what computing is.

It could be likened to teaching someone to drive without teaching him or her the Highway Code and the ecological effects of running an engine in a community. The next step is to ensure that every member of our society knows and understands computerised information systems, what they are and what they can do and what effect they are likely to have.

Perhaps the most crucial point to realise is that the function of promoting information systems lies within the grasp of everyone, be they occasional user or experienced designer or powerful promoter.

> **‘We must turn our attention to the large portion of the population who still view computers with distaste and have no desire to get their hands, not even dirty, just faintly dusty’**

The user helps the promoting process by the attitude to the system, by expectations of the system, by the use made of the output from the system and by the support given to the development of this and further systems.

The designer of a system contributes to the system's promotion by experience as a user as well as with the range of possibilities researched to present to those promoters who have, as their share of the system's development, to make the decisions concerning money and other equally important resources.

Again, promoters are also users and their promoting skills will benefit from their experience as users both of their own and other information systems.

The case, therefore, that everybody should receive some education in information systems seems very strong and likely to lead to the benefit of all those involved with information systems in whatever capacity. As this is Information Technology Year, it is appropriate that we should be carefully considering what we are planning to teach the future users of this equipment that will be found in so many businesses and industries.

At present schoolchildren are receiving some education in information systems, so we must turn our attention to the large portion of the population who still view computers with distaste and have no desire to get their hands, not even dirty, just faintly dusty. A programme could be specially mounted for them (this idea might be a godsend to the BBC).

Why not design a series on the nature, purpose and use of computerised information systems, in animated form or as a soap opera. I have always thought that computing language was rich enough to amuse if properly handled. The computing profession would know it had really arrived if the Not The Nine O'clock News team got hold of it!

Anne Leeming

* Annual conference of Information Systems Teachers at Hatfield Polytechnic July 1982.

HUMAN TOUCH

It's the language of sales

Cliff Dilloway is an independent consultant specialising in accounting software, taxation and payroll.

A LARGE investment is required to create and bring a successful program product to the market. The investment can only be recovered by sales revenue.

To maximise sales revenue the product needs to be offered in other countries. And other countries speak different languages, even those who describe their tongue as English.

The successful program product needs to produce output in the local language of all those countries where it is to be sold. We have seen two methods of introducing alternative languages into a program product.

Before describing the techniques available there is a general point of warning to English language system designers. The same meaning can almost always be conveyed in English with fewer characters than are required in other languages.

Confirmation can be obtained by inspection of any set of multilingual instructions that you come across. This is entirely logical, as English has a larger vocabulary than other languages and concise expression always calls for the shortest words capable of expressing the required meaning.

The subtle point to be realised is that when laying out for printing, extra space needs to be allowed to accommodate the foreign language expressions.

The foreign language can be introduced into the program product either by means of a preprocessor or by means of language overlays.

The preprocessor is a solve-all solution which will always work; the language overlay requires more thought at the planning stage.

The preprocessor follows the principles of word substitution available in word processing packages. Simple word processing techniques are not likely to be adequate, but if all the constants have been sensibly grouped in the programs it is not difficult to arrange for appropriate substitution and alignment to be carried out by program.

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Cliff Dilloway

10 YEARS AGO

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I rather fancy myself as Editor of Underwater Beekeeping, Quantum Physics and Mexican Cookery, incorporating the Beano.

Chad

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□ □ □ □ □

The principle is that public purchasing should be carried out according to commercial reality – the best system for the job, according to whatever criteria apply in the particular circumstances, including the needs for standardisation and compatibility. While that principle is fine and good, it is grossly unfair that it should be applied to the UK and ICL alone, when the rest of Europe and the US are free to pursue their nationalistic purchasing policies.

For example, how many US government computers are supplied by British companies? Few, if any, in terms of the massive amounts spent on computers by the US government.

It is true that no single firm dominates the public sector in the US, not even IBM. If anything, IBM has slightly less of the public sector than it does of the general market. It is equally true, however, that all the major installations are awarded to American suppliers. ICL is nowhere to be seen.

□ □ □ □

CII-Honeywell Bull in France and Siemens in West Germany enjoy similar favourable consideration from their respective governments.

So what is so different about ICL and the UK public sector? In reality, very little. The major difference is that government support for ICL in the past has been blatant, and hence provides an identifiable and clear target. Federal purchasing in the US is not so clear as to be easily lined up in the sights of the overseas computer manufacturers.

Within the EEC preferential treatment of one company by its own government is a cardinal sin if it affects trade between member States. This is clear and unequivocal – witness the public rancour over the French lamb embargo. What is not so clear is how the Commission would react to a claim, like that from Burroughs, that a company from a non-member State is being discriminated against.

By all means let us have open tendering with the tenders awarded according to commercial reality and technical feasibility. But let us have this in France and West Germany and the US, as well as in the Severn Trent Water Authority and Oxford Regional Health Authority.

If ICL is to be subjected to this treatment in the UK then let IBM, CII-HB, Burroughs and Siemens suffer similar treatment in their own countries.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by John Ind, of Macclesfield, Cheshire, who wins £5.

The Russians will brainwash our men from computers by mind power, hundreds of miles away, inducing confusion and possibly even heart attacks. They will also try to knock out tanks and computers by mind power.

News of the World

LETTERS

How can intelligence be artificial?

ONCE AGAIN I notice the subject of artificial intelligence being reviewed in the computer Press. Margarine could be said to be artificial butter. Is butter therefore, artificial margarine? What is artificial anything? Is it real artificial, or artificial artificial? The logic is tortuous.

Starting in the computer industry some 17 years ago, pixilated with the new tomorrow, I rapidly concluded that if computers were anything, they were certainly not intelligent. Nothing has since occurred to lead me to revise this view.

A recent article commented "a programmed robot will repeat its path indefinitely, until the unexpected happens". Precisely! It's not intelligent, artificial or otherwise.

A definition of intelligence I have found difficult to fault is "the ability of the human mind to respond to 'new' conditions, to realise keenly what it perceives, and to create new things, new views, and new courses of action out of its accumulated experience." The true test of intelligence is a crisis.

By this definition, computers are light years away from intelligence, artificial or otherwise, and will remain so. Couldn't we stop kidding ourselves, and view computers as the machines they are – in the scale of the concept of intelligence, a little further along the line from say, the spinning wheel.

W. B. THOMASSON
Manchester.

Rules for the experts

WE read with interest your report (CW, July 15) on the Racal Decca expert systems group, and its relation to the SPL expert systems group (established as a dedicated operation in September 1981).

We were concerned at the article's dismissal of rule-based expert systems as "parodies", and "not digging deeply enough". Virtually all notable expert systems have been rule-based, including the Schlumberger-Doll Dipmeter Advisor, an expert system developed in David Hawkins' problem area by his previous company, and the R1 system, currently trusted by DEC to configure all its VAX hardware in the US.

We would also like to correct the impression that Sage, an SPL product, is an "expert systems generator". It is in fact a consultative applications development package, addressing a range of "harsh real world problems" in a sensible way, viz, not starting from basics every time.

Much productive effort is now being devoted to new extensible expertise languages, including non rule-based knowledge representations, precisely to reduce the cost of developments in further application areas. And SPL continues to develop robust tools from such work for general use, complementing its current tools and bespoke knowledge engineering services.

On this subject, Professor Feigenbaum (head of Stanford HPP and a world authority on expert systems) remarked during his management briefing at the fifth generation conference, approximately as follows: "When you begin each expert systems application development, your staff will claim they must construct new tools – you must generally resist them."

Hardly "abstract debate"!

J. D. YOUNG
Head of Expert Systems
SPL International
Abingdon, Oxon.

Mailshots needn't put . . .

I HAVE just read the letter from Jean Dufty (CW, July 15) regarding the duplication of letters and the suggestion that hand sorting is more expensive than postage.

It amazes me that anybody would consider hand sorting in 1982, after the mailshot has been prepared and at what cost?

It is generally recognised that the most expensive element of any mass mailing operation is the postage, often accounting for more than 50% of the total costs.

I would agree with the writer that there is a cost in identifying duplicates, but this is normally a small percentage often less than 20% of the whole cost. Most good software will automatically identify duplicates in your own list and good "merge and purge" software will identify duplicates within different lists.

Our own software would certainly indentify all of the examples shown in Jean Dufty's letter as well as a number of others not mentioned.

Identifying duplicates which appear on more than one list can often be a positive aid – for example, if the same name appeared on a number of charity lists there is a much higher chance of response. Conversely, where a special offer is limited to one per household than a simple change of name would allow two or more to get through. Good software again can limit mailing pieces to one per address.

All mailing lists should be checked regularly for duplicates prior to each mailing and when more than one list is used then a deduplication process should be carried out. Certainly not a hand sort after the mailing piece has been prepared.

T.C. ARNOLD
LA Computer Services
Croydon

. . . recipients out of sorts

JEAN DUFTY'S comments (CW, July 15) concerning the problem of identifying duplicate names and addresses by computer program has moved me to make the following points.

Many computer bureaux, such as ourselves, offer sophisticated name and address processing software which overcomes problems such as mis-spellings, abbreviations, incomplete addresses, and so on.

This software is used to rebate the names and addresses in order to take advantage of large discounts offered by the Post Office for presorted mail.

Deduplication software gives further ongoing savings by reducing the number of names and addresses to be mailed.

Our software would have trapped *all* the examples (including Allen) listed by Jean Dufty.

If any of your readers receive mail which contains an apology for possible duplications it usually means that they are not confident in the computer software and/or hand sorting techniques.

We have one customer with four million names and addresses; using our software we have achieved a 97.15% rebate success and 42.21% duplicates.

Jean Dufty has the misconception that deduplicating a file of names and addresses is not cost effective. This, of course, is completely untrue.

J. M. COTTLE
Group Data Management Manager
Racal Decca Management Services
New Malden
Surrey.

Worth a prize

IF YOU really are going to quote people saying things like "humans must download some of their functionality into a microprocessor" (CW, July 15), please give us an area of the newspaper where we can send in the cutting and win a £5 prize.

CLIVE MACDONALD
London SE19.

Editor: Touché!

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

The status of operators

I HAVE followed with considerable interest, over a long period of time, the continuing debate in Computer Weekly and other publications covering the status of computer operators within an organisation, and the industry in general.

After working for various employers for about 12 years, mainly in senior operator/shift leader positions, it still remains blatantly obvious that, on the whole, operations staff are the poor relations of the industry.

From my own experiences, and the experiences of others I have spoken to on this subject, there are several recurring factors which emerge, notably considerable gap in salary scales compared with other DP staff; lack of consultation with operations staff regarding the day-to-day running or future development of the department; non-existent operator training as systems become more complex; non-existent, or outdated documentation, resulting in mistakes for which the finger is invariably pointed at operations staff.

Obviously it would be grossly unfair to suggest that these conditions prevail in all companies, as I am sure there are many companies where the role of the operations staff is accorded the status it surely deserves. If any such company wishes to employ a 29-year-old senior operator, I would be most pleased to hear from them!

Sadly it seems that such companies are still outnumbered by those who refuse to acknowledge computer operators as an essential part of their professional DP staff.

D. BIRCHALL
Manchester.

Generation gap

BEFORE any more of the industry experts wax lyrical about the mass Japanese conspiracy called "The Fifth Generation" could they please tell us precisely what is new about it.

You cannot define anything as first, second, third, fourth or fifth generation except in retrospect, especially in the computer industry where everything is changing so quickly.

From what I have seen of the fifth generation so far it is in great danger of being the Ford Edsel of the computer industry and deserving of the epitaph on the grave of an atheist – all dressed up with nowhere to go.

CHRIS YOUETT
Coventry.

SYSTEMS THOUGHTS

What we should teach in the information era

Anne Leeming lectures at the Centre for Business Systems Analysis at City University. She is also a consultant on microcomputer systems.

AT a recent meeting of information systems teachers,* discussion was quite heated about what we should be teaching.

Should we be training practical systems analysts and designers capable of designing computer systems to specifications developed by outsiders? They should, of course, have at their fingertips all the current techniques of hardware and software selection and design.

Alternatively, at the other end of the spectrum of choice, should we also be educating people to understand the underlying concepts of information systems so that they can understand all the implications of what they are being trained to design?

Are we educating the right people and all of them?

We reached agreement rapidly on the future extent of computerised information systems. Because of the spread of cheap computing machinery at all levels, our society is going to depend heavily on the computer for the storage and distribution of information that will be vital for our everyday existence, whether we like it or not.

Many of us already have data about ourselves stored on a computer and we do not know what that data is. It is to be hoped that the proposed data protection legislation will do something to clarify everybody's rights and obligations in this area. However, the essential point is that all of us will be users of information systems; some of us will be designers of the information systems of the future; some of us will be managers or, better word, promoters of information systems.

The conclusion we came to, in view of this enormous spread of information systems that we envisaged, was that everyone should be taught about the information systems of the future. The development of this education is well under way and we are seeing a portion of the relevant computer education happening in many schools at the moment.

Of course teaching people to program is only part of the task, albeit a very important part as, by getting their hands dirty, students realise something of what computing is.

It could be likened to teaching someone to drive without teaching him or her the Highway Code and the ecological effects of running an engine in a community. The next step is to ensure that every member of our society knows and understands computerised information systems, what they are and what they can do and what effect they are likely to have.

Perhaps the most crucial point to realise is that the function of promoting information systems lies within the grasp of everyone, be they occasional user or experienced designer or powerful promoter.

> **‘We must turn our attention to the large portion of the population who still view computers with distaste and have no desire to get their hands, not even dirty, just faintly dusty’**

The user helps the promoting process by the attitude to the system, by expectations of the system, by the use made of the output from the system and by the support given to the development of this and further systems.

The designer of a system contributes to the system's promotion by experience as a user as well as with the range of possibilities researched to present to those promoters who have, as their share of the system's development, to make the decisions concerning money and other equally important resources.

Again, promoters are also users and their promoting skills will benefit from their experience as users both of their own and other information systems.

The case, therefore, that everybody should receive some education in information systems seems very strong and likely to lead to the benefit of all those involved with information systems in whatever capacity. As this is Information Technology Year, it is appropriate that we should be carefully considering what we are planning to teach the future users of this equipment that will be found in so many businesses and industries.

At present schoolchildren are receiving some education in information systems, so we must turn our attention to the large portion of the population who still view computers with distaste and have no desire to get their hands, not even dirty, just faintly dusty. A programme could be specially mounted for them (this idea might be a godsend to the BBC).

Why not design a series on the nature, purpose and use of computerised information systems, in animated form or as a soap opera. I have always thought that computing language was rich enough to amuse if properly handled. The computing profession would know it had really arrived if the Not The Nine O'clock News team got hold of it!

Anne Leeming

* Annual conference of Information Systems Teachers at Hatfield Polytechnic July 1982.

HUMAN TOUCH

It's the language of sales

Cliff Dilloway is an independent consultant specialising in accounting software, taxation and payroll.

A LARGE investment is required to create and bring a successful program product to the market. The investment can only be recovered by sales revenue.

To maximise sales revenue the product needs to be offered in other countries. And other countries speak different languages, even those who describe their tongue as English.

The successful program product needs to produce output in the local language of all those countries where it is to be sold. We have seen two methods of introducing alternative languages into a program product.

Before describing the techniques available there is a general point of warning to English language system designers. The same meaning can almost always be conveyed in English with fewer characters than are required in other languages.

Confirmation can be obtained by inspection of any set of multilingual instructions that you come across. This is entirely logical, as English has a larger vocabulary than other languages and concise expression always calls for the shortest words capable of expressing the required meaning.

The subtle point to be realised is that when laying out for printing, extra space needs to be allowed to accommodate the foreign language expressions.

The foreign language can be introduced into the program product either by means of a preprocessor or by means of language overlays.

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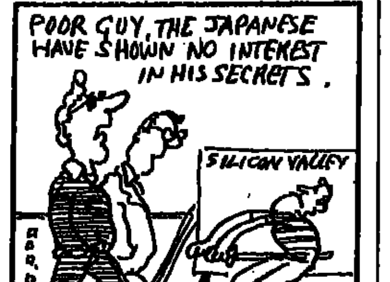

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Surprisingly, what the withdrawal does signify is a lack of preparation on IBM's part. To have to admit in court that it did not know that the full Water Authority had ratified the decision, must have been a bitter pill to swallow. It does not, though, lessen the importance of the principle behind IBM's and Burroughs' actions.

□ □ □ □ □

The principle is that public purchasing should be carried out according to commercial reality — the best system for the job, according to whatever criteria apply in the particular circumstances, including the needs for standardisation and compatibility. While that principle is fine and good, it is grossly unfair that it should be applied to the UK and ICL alone, when the rest of Europe and the US are free to pursue their nationalistic purchasing policies.

For example, how many US government computers are supplied by British companies? Few, if any, in terms of the massive amounts spent on computers by the US government.

It is true that no single firm dominates the public sector in the US, not even IBM. If anything, IBM has slightly less of the public sector than it does of the general market. It is equally true, however, that all the major installations are awarded to American suppliers. ICL is nowhere to be seen.

□ □ □ □

CII-Honeywell Bull in France and Siemens in West Germany enjoy similar favourable consideration from their respective governments.

So what is so different about ICL and the UK public sector? In reality, very little. The major difference is that government support for ICL in the past has been blatant, and hence provides an identifiable and clear target. Federal purchasing in the US is not so clear as to be easily lined up in the sights of the overseas computer manufacturers.

Within the EEC preferential treatment of one company by its own government is a cardinal sin if it affects trade between member States. This is clear and unequivocal — witness the public rancour over the French lamb embargo. What is not so clear is how the Commission would react to a claim, like that from Burroughs, that a company from a non-member State is being discriminated against.

By all means let us have open tendering with the tenders awarded according to commercial reality and technical feasibility. But let us have this in France and West Germany and the US, as well as in the Severn Trent Water Authority and Oxford Regional Health Authority.

If ICL is to be subjected to this treatment in the UK then let IBM, CII-HB, Burroughs and Siemens suffer similar treatment in their own countries.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by John Ind, of Macclesfield, Cheshire, who wins £5.

The Russians will brainwash our men from computers by mind power, hundreds of miles away, inducing confusion and possibly even heart attacks. They will also try to knock out tanks and computers by mind power.

News of the World

LETTERS

How can intelligence be artificial?

ONCE AGAIN I notice the subject of artificial intelligence being reviewed in the computer Press. Margarine could be said to be artificial butter. Is butter therefore, artificial margarine? What is artificial anything? Is it real artificial, or artificial artificial? The logic is tortuous.

Starting in the computer industry some 17 years ago, pixilated with the new tomorrow, I rapidly concluded that if computers were anything, they were certainly not intelligent. Nothing has since occurred to lead me to revise this view.

A recent article commented "a programmed robot will repeat its path indefinitely, until the unexpected happens". Precisely! It's not intelligent, artificial or otherwise.

A definition of intelligence I have found difficult to fault is "the ability of the human mind to respond to 'new' conditions, to realise keenly what it perceives, and to create new things, new views, and new courses of action out of its accumulated experience." The true test of intelligence is a crisis.

By this definition, computers are light years away from intelligence, artificial or otherwise, and will remain so. Couldn't we stop kidding ourselves, and view computers as the machines they are — in the scale of the concept of intelligence, a little further along the line from say, the spinning wheel.

W. B. THOMASSON
Manchester.

Rules for the experts

WE read with interest your report (CW, July 15) on the Racal Decca expert systems group, and its relation to the SPL expert systems group (established as a dedicated operation in September 1981).

We were concerned at the article's dismissal of rule-based expert systems as "parodies", and "not digging deeply enough". Virtually all notable expert systems have been rule-based, including the Schlumberger-Doll Dipmeter Advisor, an expert system developed in David Hawkins' problem area by his previous company, and the R1 system, currently trusted by DEC to configure all its VAX hardware in the US.

We would also like to correct the impression that Sage, an SPL product, is an "expert systems generator". It is in fact a consultative applications development package, addressing a range of "harsh real world problems" in a sensible way, viz, not starting from basics every time.

Much productive effort is now being devoted to new extensible expertise languages, including non rule-based knowledge representations, precisely to reduce the cost of developments in further application areas. And SPL continues to develop robust tools from such work for general use, complementing its current tools and bespoke knowledge engineering services.

On this subject, Professor Feigenbaum (head of Stanford HPP and a world authority on expert systems) remarked during his management briefing at the fifth generation conference, approximately as follows: "When you begin each expert systems application development, your staff will claim they must construct new tools — you must generally resist them."

Hardly "abstract debate"!

J. D. YOUNG
Head of Expert Systems
SPL International
Abingdon, Oxon.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Mailshots needn't put . . .

I HAVE just read the letter from Jean Dufty (CW, July 15) regarding the duplication of letters and the suggestion that hand sorting is more expensive than postage.

It amazes me that anybody would consider hand sorting in 1982, after the mailshot has been prepared and at what cost?

It is generally recognised that the most expensive element of any mass mailing operation is the postage, often accounting for more than 50% of the total costs.

I would agree with the writer that there is a cost in identifying duplicates, but this is normally a small percentage often less than 20% of the whole cost. Most good software will automatically identify duplicates in your own list and good "merge and purge" software will identify duplicates within different lists.

Our own software would certainly indentify all of the examples shown in Jean Dufty's letter as well as a number of others not mentioned.

Identifying duplicates which appear on more than one list can often be a positive aid — for example, if the same name appeared on a number of charity lists there is a much higher chance of response. Conversely, where a special offer is limited to one per household than a simple change of name would allow two or more to get through. Good software again can limit mailing pieces to one per address.

All mailing lists should be checked regularly for duplicates prior to each mailing and when more than one list is used then a deduplication process should be carried out. Certainly not a hand sort after the mailing piece has been prepared.

T.C. ARNOLD
LA Computer Services
Croydon

. . . recipients out of sorts

JEAN DUFTY'S comments (CW, July 15) concerning the problem of identifying duplicate names and addresses by computer program has moved me to make the following points.

Many computer bureaux, such as ourselves, offer sophisticated name and address processing software which overcomes problems such as mis-spellings, abbreviations, incomplete addresses, and so on.

This software is used to rebate the names and addresses in order to take advantage of large discounts offered by the Post Office for presorted mail.

Deduplication software gives further ongoing savings by reducing the number of names and addresses to be mailed.

Our software would have trapped *all* the examples (including Allen) listed by Jean Dufty.

If any of your readers receive mail which contains an apology for possible duplications it usually means that they are not confident in the computer software and/or hand sorting techniques.

We have one customer with four million names and addresses; using our software we have achieved a 97.15% rebate success and 42.21% duplicates.

Jean Dufty has the misconception that deduplicating a file of names and addresses is not cost effective. This, of course, is completely untrue.

J. M. COTTLE
Group Data Management Manager
Racal Decca Management Services
New Malden
Surrey.

Worth a prize

IF YOU really are going to quote people saying things like "humans must download some of their functionality into a microprocessor" (CW, July 15), please give us an area of the newspaper where we can send in the cutting and win a £5 prize.

CLIVE MACDONALD
London SE19.
Editor: Touchél

The status of operators

I HAVE followed with considerable interest, over a long period of time, the continuing debate in Computer Weekly and other publications covering the status of computer operators within an organisation, and the industry in general.

After working for various employers for about 12 years, mainly in senior operator/shift leader positions, it still remains blatantly obvious that, on the whole, operations staff are the poor relations of the industry.

From my own experiences, and the experiences of others I have spoken to on this subject, there are several recurring factors which emerge, notably considerable gap in salary scales compared with other DP staff; lack of consultation with operations staff regarding the day-to-day running or future development of the department; non-existent operator training as systems become more complex; non-existent, or outdated documentation, resulting in mistakes for which the finger is invariably pointed at operations staff.

Obviously it would be grossly unfair to suggest that these conditions prevail in all companies, as I am sure there are many companies where the role of the operations staff is accorded the status it surely deserves. If any such company wishes to employ a 29-year-old senior operator, I would be most pleased to hear from them!

Sadly it seems that such companies are still outnumbered by those who refuse to acknowledge computer operators as an essential part of their professional DP staff.

D. BIRCHALL
Manchester.

Generation gap

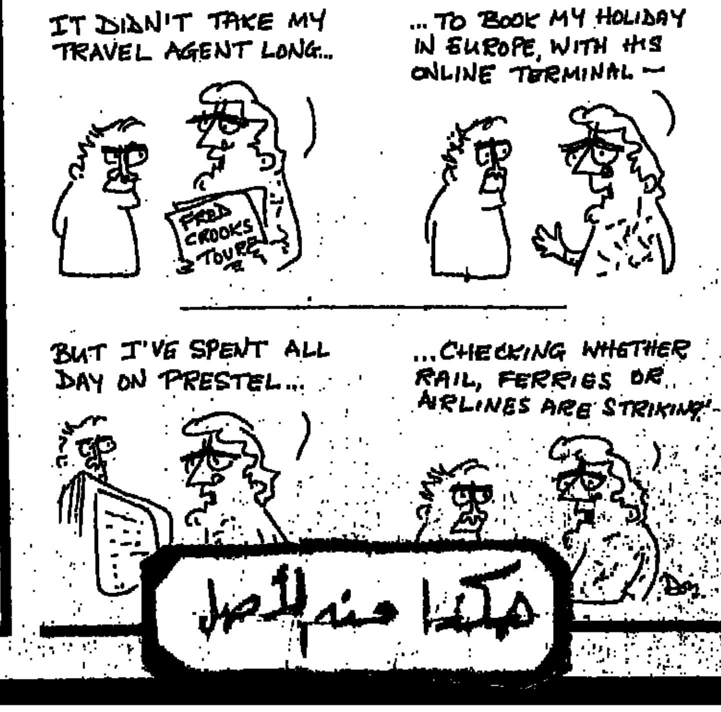
BEFORE any more of the industry experts wax lyrical about the mass Japanese conspiracy called "The Fifth Generation" could they please tell us precisely what is new about it.

You cannot define anything as first, second, third, fourth or fifth generation except in retrospect, especially in the computer industry where everything is changing so quickly.

From what I have seen of the fifth generation so far it is in great danger of being the Ford Edsel of the computer industry and deserving of the epitaph on the grave of an atheist — all dressed up with nowhere to go.

CHRIS YOUETT
Coventry.

Liveware File by Don



PROGRAMMERS PAGE by Philip Hunter

Don't despise documentation – it's a software success story

BIGGS . . . *In the beginning was the documentation.*

A COMPANY which began by writing technical documentation for illiterate software has now become a fully-fledged software house. The success of the firm, InterEurope, is an example of how the computer industry has changed in the last ten years.

InterEurope entered the "house of software" through the back door by making a virtue of the despised chore of documentation. After a move into systems software, process control, and communications, its profits and turnover accelerated.

This week it took a quotation on the Unlisted Securities Market to raise money for acquisitions in the software industry.

When InterEurope began by writing technical documentation staff would consult with programmers and analysts on the relevant project, then go away and write the documentation. Or sometimes staff would complete the work on the client site if the system being documented was particularly esoteric and required constant consulation.

The initial success of InterEurope came from exploiting demand for plain simple English about ambiguous matters. Programmers have traditionally been notoriously reluctant or unable to provide this.

InterEurope has since supplied documentation to many great names including ICL, GEC, Ferranti, as well as NATO and the Ministry of Defence, for which it is now an approved supplier of software.

Most of the documentation is for packages rather than customised systems, except when the customised systems are also provided by InterEurope itself.

To produce good documentation, a thorough understanding of the system is required. This understanding spawned the embryo of a new division, InterEurope Technical Services, registered under the name InterEurope Software Design.

"We hit problems with the literalness of the name," explains technical services manager Nigel Biggs.

Now InterEurope has produced a variety of software, including ship design, weapons, process control, and instrument testing.

The ship system is a single tender contract, which one of the company directors modestly describes as "not being lucrative enough for the big boys like Logica and CAP."

The system is a description of the wiring, water supplies and weapons, and incorporates a proprietary database query system which InterEurope has tailored.

InterEurope went into process control when the Bristol-based Langston Machine Company called it in for some documentation.

Langston had been asked to provide process control software for paper cutting and winding equipment, and it had been hoped InterEurope would inject some standards into the project. In the event InterEurope took over all the software.

Now InterEurope provides the hardware as well.

The first step was to produce some rudimentary software to control individual machines. Then it put in a management information systen to record the speed of paper flow through the various machines, and times of breakdown.

InterEurope also has installed a system into one of the Reed paper mills in Berkshire.

The first job there was to develop a microprocessor controller for a paper winder, which cuts big reels into variable length smaller ones. Paper comes off the big reel across knives which are operated by the microprocessor.

A VDU was put on to the system for mill operators to interact and intervene.

Then came a VDU-controlled *automatic labelling system for the* paper reels, which can stop the flow of paper to the nearest ten metres. Biggs assures me that this is precision control indeed, considering the speed of paper flow.

Microprocessors are also used to control a sheeter which cuts reels of paper into thinner reels, and a cutter which produces predestined lengths of paper as it flows along the production line from the sheeter.

An automatic stack changer is used to hold up the paper flow while the pallet on which the paper is stacked is changed.

Quality control is provided by a photoelectric cell which detects damaged paper. Now this too is controlled by microprograms that stop the flow and divert damaged paper into the waste paper basket.

InterEurope has suggested linking all the microprocessors to increase efficiency, and in particular cut down waste. "Their big problem is overcutting and over production," says Biggs.

PUZZLER

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IN this skeletal division-sum, three 5s are provided as clues. Can you work out all the other figures? If not, see page 39 for the solution.

OP SPOT by Andrew Thomas

Watch out for tell-tale signs of computer fraud

OPERATORS have a significant advantage over other DP personnel in the number of opportunities presented to them to perpetrate computer fraud – should they have a mind to do so. The possibilities are almost endless, but include such acts as mutilating cheques, modifying the wiring of communications equipment, altering software, and falsifying data.

The amounts involved can range from tens to millions of pounds, averaging between £10,000 and £50,000 – and hardly any of the culprits go to jail if they are careless enough to get caught.

Companies are reticent to admit that they have been ripped off in this manner, and although the crooks are invariably asked to leave, in many cases they are given excellent references, even golden handshakes.

The few that are prosecuted receive suspended sentences of no more than two years, and the longest prison term handed out to a computer criminal in the UK has been four years.

Another fundamental difference between computer criminals and the sawn-off shotgun and stockings-over-the-head firms is that, in most cases, the computer crook does not believe he is actually robbing anyone, and often undertakes digital deception only as a technical exercise "just to see if it can be done".

The entire operating staff of one major clearing bank conspired to extract over £3,000 from the bank before they were caught. The method chosen was to deface the machine readable characters on their cheques after they had been credited to the payee. The document reader rejected the mutilated cheques, and they were sent back to the machine room for checking.

The operators simply extracted their cheques from the reject pile and destroyed them to prevent their accounts from being debited.

An operator employed by an oil company embezzled more than £25,000 by helping out garage owners with cash flow problems. He modified a program to select invoices to several garages and to allow them a 2½p per gallon discount to which they were not entitled. For his pains, he received a payment from the garage owners.

All went well until the auditors discovered that when the operator went on holiday the price codes for certain garages reverted to normal.

He went to jail for four months.

My personal favourite is the case of a large multinational company with separate divisions.

One division operated a discount for quantity orders from customers, and also supplied goods to another division, but without a discount scheme. It didn't take an Einstein to realise that there was money to be made. A fake company was set up on the customer file, and orders from one division were routed through the fake company which was subsequently credited with a 40% discount. The goods were then "sold" by the fake company to the division which had originally placed the order, at a slightly lower price than the straight transfer value.

The phoney company proved so successful that it attracted 60 genuine customers in two-and-a-half years, during which the crooks had extracted £150,000 in profit. They were eventually discovered, and dismissed. No legal action was taken against them, and the company actually took over the non-existent company and ran it as one of its most profitable subsidiaries.

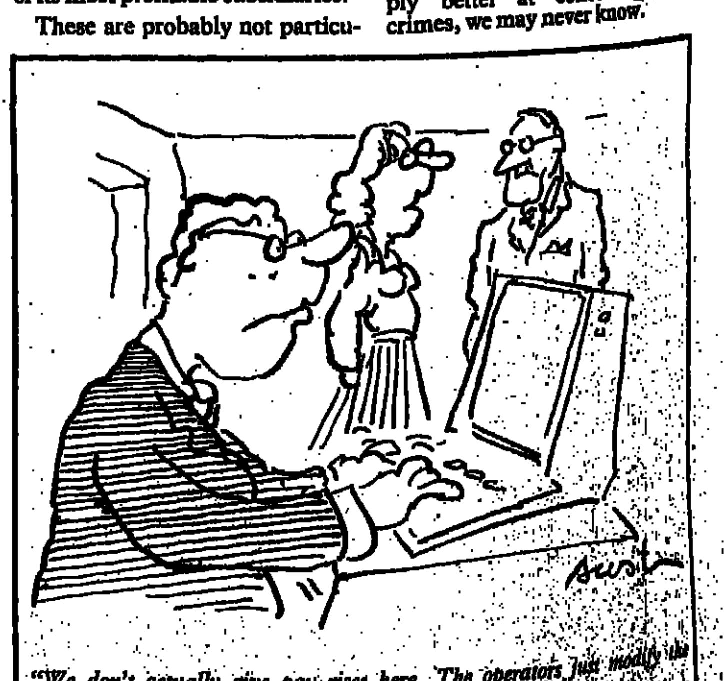
These are probably not particularly good examples, for one rather significant reason: the perpetrators were all caught.

What are the tell-tale signs of a computer fraud? Low morale is one of the indications that something could be amiss. Perhaps operators aren't particularly concerned if the system is abused and security and control procedures are by-passed. The machine room is rather untidy, routine maintenance doesn't get done, output goes astray, no one cares if they are found or not, and staff and visitors wander around without any restrictions.

System documentation will either not exist, or will be hopelessly out of date. Errors are lived with rather than cured, and no one seems to know exactly what the system does.

Staff may have rather more expensive cars than it is likely they can afford; they may have expensive hobbies and wear expensive clothes. Where is the extra money coming from?

The available figures suggest that the incidence of computer fraud in the US is considerably higher than in Britain. Whether this means the British are more honest than the Americans, or simply better at concealing their crimes, we may never know.



"We don't actually give pay rises here. The operators just modify the payroll system once a year."

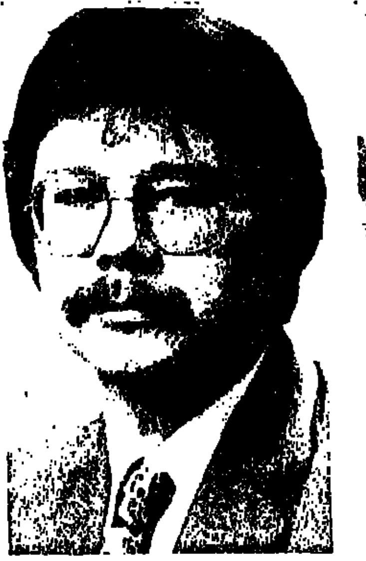
PEOPLE

Professional V-P elected at BCS

ERNEST MORRIS, assistant general manager of the Prudential Assurance Company, has been elected vice-president (Professional) of the BCS. He replaces **Steve Shirley,** who completes her three-year term in October.

Morris has been involved with computers since the Fifties, when he was the equivalent of a systems engineer at the British Tabulating Machine Company. He joined CT Bowring in 1958 as EDP and later O&M manager and nine years later went to the management consultancy firm Cooper Brothers, where he was a director responsible for computer consultancy.

He has been a member of the BCS since 1958. He is a member of Council, the Finance Board, and the Membership Committee. He has been vice-chairman of the professional board, and is a former president of the Computing Services Association.



John Pember has joined Peachtree Software as a programmer. He was previously a product support engineer at Dicoll Electronics, and before that worked for Equinox computer Systems as a senior engineer.

Also joining Peachtree is Hilary Tait, who becomes a consultant. She brings to the company four years' experience in Kienzle equipment and a similar period on AM Jacquard systems.

Third new recruit at Peachtree is David Peacock, who joins the programming team. For the past eight years he has worked as an assistant scientific officer at the National Physical Laboratory.

Alan Mann has joined Grundy Business Systems as a sales executive responsible for professional user sales of NewBrain microcomputer-based systems. He was previously in sales with Triad Computer Systems.

■ **Keith Smith** has been appointed sales office manager at GEC-General Signal. He joined the contracts department of the company in 1974. **Geoff Whitehouse** has been appointed customer services manager at the company. He joined in the Fifties as technical assistant.

■ **Peter Moore** and **Steve Bernard** have joined Wang UK's marketing department. Moore, who joins from University Computing Company, becomes vendor marketing manager and Bernard, who is dealer marketing manager, was formerly marketing director of Ingersoll.

■ **Richard Phillips** has been promoted from software manager to sales engineer at Xylogics. He has been with the company for 14 months. **Chris Cuthbert** has joined the company as technical support manager. He was previously technical support engineer at Systime.

■ **Michael Roth** has joined Contel Information Systems' consulting and technical services division as manager of client services for the Western region. He will operate from the company's recently-opened Los Angeles office. He was previously with Satellite Business Systems.

■ **David Goldsmith** has been promoted to vice-president, communications, at National Advanced Systems in Sunnyvale, California. He was formerly director of the company's sales support, advertising and public relations.

■ **Malcolm Dodd** has joined Micrelec as technical director.

■ **Don Shaw** has been appointed Southern regional manager at the National Computing Centre. He was previously with Tylin Management Services, which he joined as marketing manager.

■ **Woodrow Senn** has been appointed director of marketing at Intertec Data Systems.

■ **Frank Hereford** has been elected to the board of Gould, bringing the number of directors to 16. He is president of the University of Virginia at Charlottesville, US.

■ **James Towne** has joined Seattle-based Microsoft as president and chief operating officer. He was formerly vice-president and general manager of the instruments division of Tektronix.

■ **Amit Roy** has been appointed marketing manager at Dataview, publisher of microcomputer software. He was formerly marketing planning and research manager for Ozalid (UK).

DIARY

SEPTEMBER 8
OTL Gives Voice to Information Management. Meeting on OTL's Information Management Processor. Institute of Information Scientists WP and computer information systems special interest group. OTL, London. Tel Helen Harris on: 01-229 5069.

SEPTEMBER 14
Expert Systems. Speaker Alex d'Agapeyeff. IDPM West London to Oxford branch. Bell House Hotel, **Beaconsfield.**

SEPTEMBER 19-24
Industrial digital and microprocessor-based control systems. IEE. Vacation School at Balliol College, **Oxford.** Details from IEE, 01-240 1871.

SEPTEMBER 23-24
Information systems – analysis and design working party. BCS. Open University, **Milton Keynes.** Details Guy Fitzgerald, 01-854 2030, ext 377.

OCTOBER 5
The impact of the new technology on management. Speaker David Fairbairn, director of NCC. *IDPM Scottish branch-British* Institute of Management. Merchants House, 7 West George Street, **Glasgow.**

OCTOBER 6
Impact of new technology on management – challenges and implications of IT for the workplace. Speaker Ted Cluff, secretary-general IDPM. IDPM Scottish branch – Institute of Management. Lecture Theatre, College of Commerce, **Aberdeen.**

CONFERENCES

■ **LETCHWORTH Computer Services** and Wansborough White are jointly sponsoring a conference to be held at the Royal Aeronautical Society on October 21-22. Called Today and Tomorrow – Micro and Minicomputers in Airline Operations, the conference aims to act as a forum of information for airlines seeking the theoretical framework in which to plan for their micro and mini applications.

It also aims to show computer and software companies the market for airline applications. Fee is £190 including VAT. Further information is available by telephoning Wansborough White on 01-994 0964.

John Kavanagh opens this four-page feature with a report on the initiatives – and in-fighting – in DP training

Changes could be for the better – but only if the fighting stops

BIG CHANGES are happening in the training world – and if computer managers respond, they could go a long way towards solving the problems of finding and losing staff. New initiatives in training could also bring new hope to the thousands wishing to become programmers but are caught in the vicious circle of "no experience, therefore no job".

Unfortunately there is a lot of in-fighting between some of the main organisations involved in training. These include the recently formed Computing Services Industry Training Council, the Engineering Industry Training Board, the Institute of Data Processing Management and the government's Manpower Services Commission. Meanwhile the government is reviewing its backing for training, and spending cuts are reducing the number of computing graduates coming on to the jobs market.

Nobody doubts that the computer industry faces a big staffing problem. Two years ago a survey by the Institute of Manpower Studies found a shortage of 21,000 computer staff, including 16,000 programmers and systems analysts. Last year the Computing Services Industry Training Council studied staff movements during the slow summer period and found a mean annual staff turnover of 11%. In the London area annual staff turnover was 16%.

Ted Cluff, secretary general of the Institute of Data Processing Management, reckons the turnover is nearer 25% per year and that installations are 10% short of staff.

But the training bodies claim that despite all their apparent concern about these figures, organisations are generally unwilling to train existing staff in new techniques and even less keen to take on people with only a basic training.

The Manpower Services Commission offers grants covering half the cost of training new staff or giving extra training to existing people. About 2,000 people are trained under this scheme every year. "This is not a very good take-up," says Hugh Sharp, head of computer training. "It is difficult to get employers to think in terms of additional staff training."

Gordon Ewan, head of the Computing Services Industry Training Council, reports only a "middling response" from services companies to his suggestion of a modest £100 to £250 membership subscription, with some companies showing no interest at all.

The take-up rate of raw recruits is even more depressing. The two main schemes offering basic training are Threshold, for unemployed school-leavers, and the TOPS Training Opportunities Scheme for people who have already had jobs.

A recent survey showed that 55% of TOPS students had failed to get jobs in computing within three months of finishing their courses, while almost 75% of the Threshold people went straight back to the dole queue after training for the best part of a year.

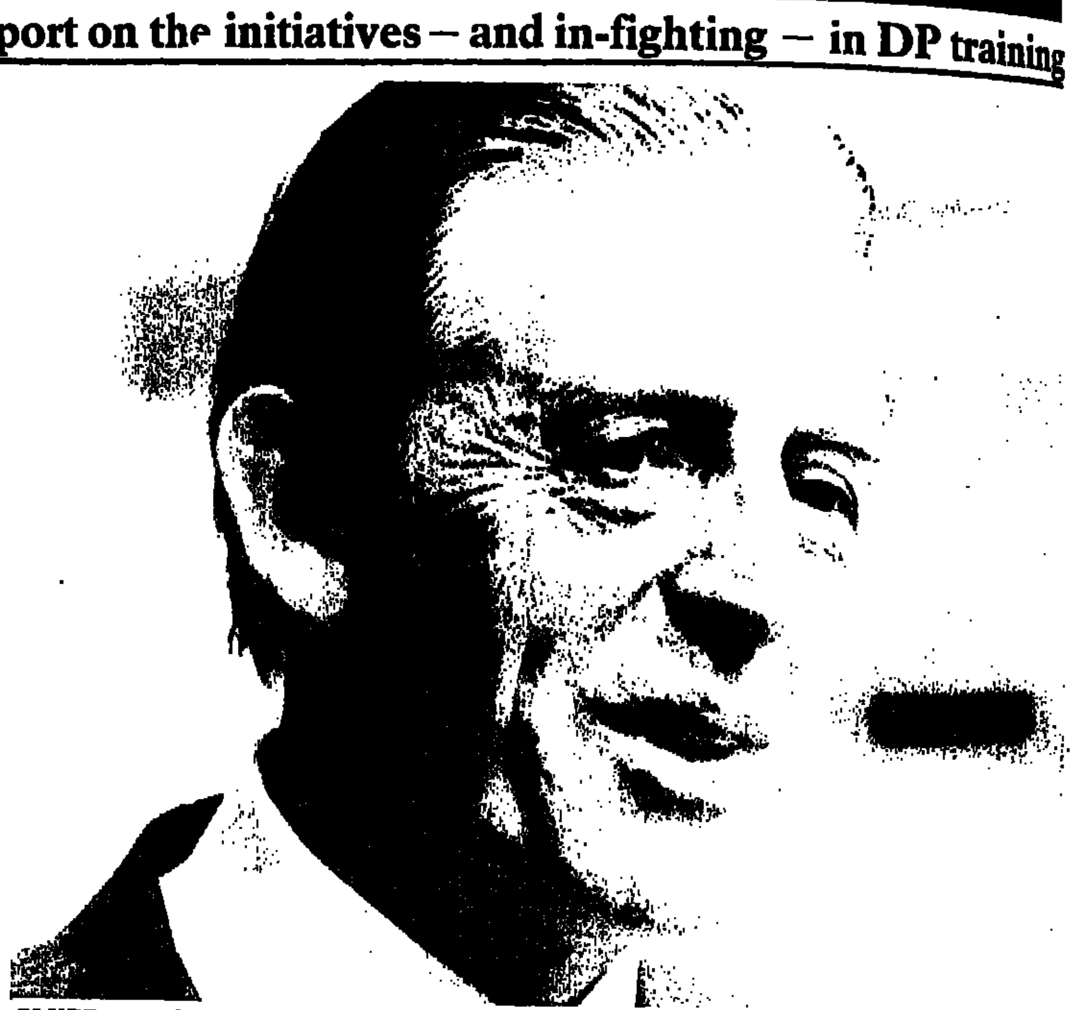
Ewan points to the number of job advertisements demanding experienced people: "All that's happening is that employers are recycling experienced staff," he says.

Services companies at least consider newcomers, but only university graduates, says Ewan – and this brings new problems. "There's a strong cultural thing in the services industry that you only take on graduates. But companies need a balanced intake because if there is not enough demanding work for all the graduates they get frustrated and leave."

> There's a strong cultural attitude in the services industry that you only take on graduates. But if there is not enough demanding work for all the graduates they get frustrated and leave

The arrival of Ewan and his small staff has coincided with – some say sparked off – new activity in the other organisations with deep interest in training.

Ewan's ideas include a pool of unemployed people who could be trained through the council and made available to members. Ewan sees this as a way of helping smaller services companies in particular, companies which say they cannot afford to train new staff and therefore only contribute to the damaging recycling of experienced people. He is also proposing a form of apprenticeship for computer staff, offering employers grants to take on trainees.



CLUFF . . . *Crusading against in-built attitudes against trainees.*

At the Institute of Data Processing Management, Cluff points out that it probably takes a TOPS graduate with a basic training six months to become a useful staff member.

Having been patient for six months, the employer risks losing the person to another installation after a year, just when he or she is starting to become useful.

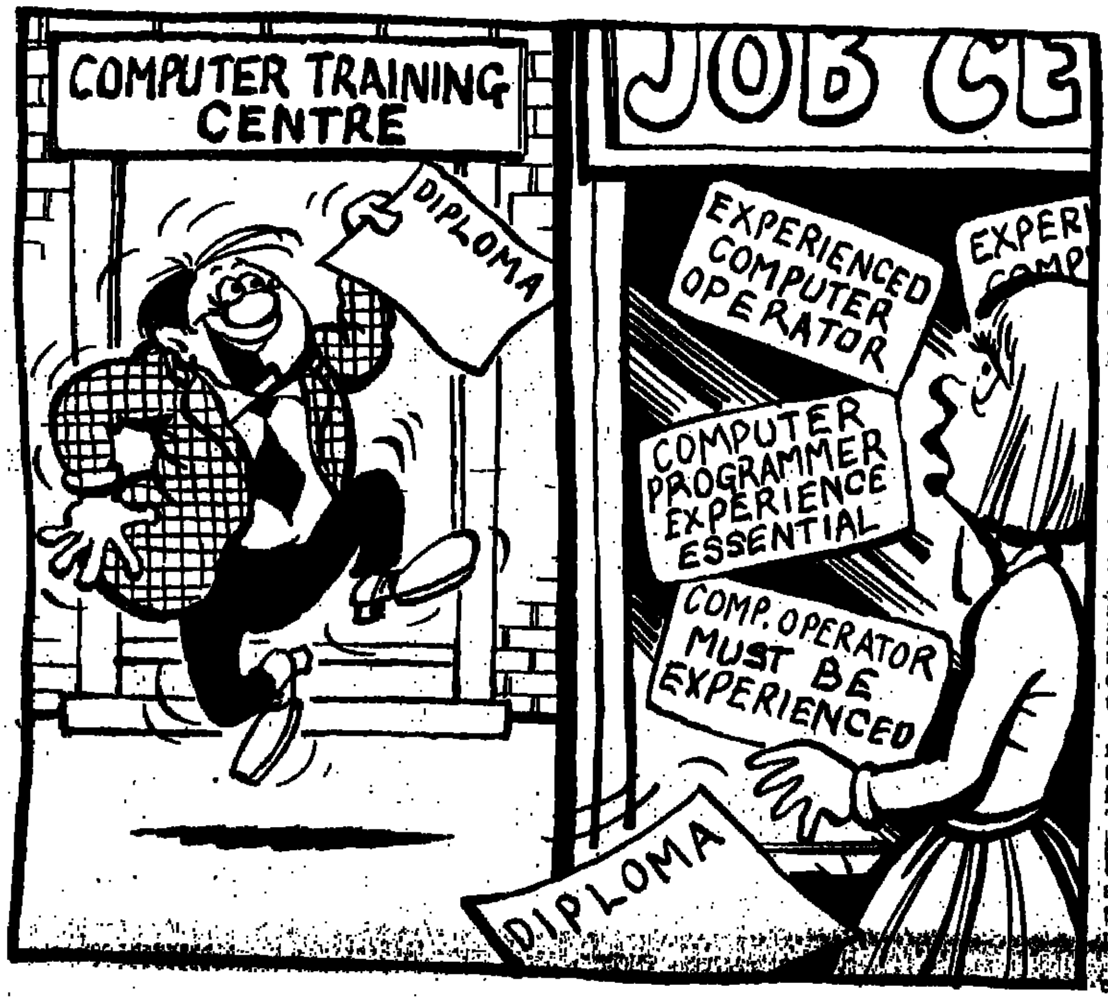
Cluff suggests TOPS people could agree to stay for, say, two years. This contract would be binding on the recruit, but not on the employer. In addition it would be understood that the new person would do jobs such as putting amendments into programs for more experienced staff, setting up test data, writing documentation and filing printouts. "These are mundane jobs which experienced staff don't like – but they are very good training for someone new," says Cluff.

TOPS students who cannot find jobs could be offered free refresher courses, says Cluff. "Many people give up decent jobs to go on a TOPS course in the hope of furthering their careers, but they end up unemployed. The longer they are unemployed after their course the more the chance of getting a job fades away," he points out.

"We suggest therefore that the Manpower Services Commission should finance refresher courses. And the MSC could offer employers the incentive of a top-up course for a TOPS graduate once he gets a job."

Another suggestion is that installations should take on an extra trainee. "When someone leaves you get desperate: you don't have time to train a new person so you look for someone experienced," Cluff explains. "We say that if you take on one trainee above your establishment number at a trainee salary, you'll have your own home-grown experienced person ready to take over when the next programmer leaves in six months' time."

> Many people give up decent jobs to go on a TOPS course hoping to further their careers, but they end up unemployed.



Despite these proposals Cluff is facing a blank wall of apathy among employers. "I'm crusading against this in-built attitude that you only take on experienced staff, but I'm not getting very far," he says.

At the Manpower Services Commission, Sharp is working on other ideas. A reorganisation of the MSC at the start of the year created the job of head of computer training, and brought this area under the control of one person for the first time.

Previously the MSC was organised along the lines of its various training schemes, regardless of different industries. For example all TOPS schemes were lumped together. The schemes have now been arranged into disciplines such as computing, Sharp is well placed to get an overall view of training needs here.

One idea he is pursuing is the establishment of standards for everything from aptitude tests to training levels. "You can train a man in bricklaying and he gets a piece of paper from the training establishment which any employer recognises as showing just what he can do," says Sharp. "The employer can look at the piece of paper and say, 'OK, start on Monday.' But in computing there's a big gulf between basic training and what employers want."

Some of the organisations feel there is a need for a focal point for computer training. The government has said training should become more the responsibility of employers. Sharp points out that data processing has always been fragmented because it cuts across every industry. As the responsibility for training is pushed increasingly on employers, that fragmentation is likely to be reflected in staff training. So some organisations are trying to set themselves up as a focal point.

In the past the Engineering Industry Training Board has provided something of a focal point, but mainly among its 25,000 engineering company members.

Ewan at the Computing Services Industry Training Council plays down earlier suggestions that his organisation could become the new focus. "We get all kinds of queries from people and we often pass them to other sources of information," he says. "We are one of several repositories of information on training."

Several industry sources suggest Ewan's council and the Engineering Industry Training Board are fighting over which of them should be the focal point. It has been suggested that the board is worried for its future following the axing of 16 of the 30 industry training boards, while Ewan is looking for support for when the Manpower Services Commission's £65,000 grant runs out next year. Both bodies firmly reject any suggestion of competition, saying they complement each other.

The Institute of Data Processing Management has reacted coolly to Ewan's apparent bid to be the focal point. "We think that if it wants to be a focus, it should be independent of commercial interests and cut itself off from the Computing Services Association," says Cluff.

The changes taking place in the training business seem to be throwing up many fresh ideas, and it will be a pity if squabbling detracts from them. But ultimately the success or failure of the ideas come back to the employers.

As Ewan says: "If we start expanding after the recession even more employers will be competing for experienced staff. Make no mistake: people are going to get caught out."

EWAN . . . *Companies need a balanced intake.*

Recession is forcing managers to allocate funds more effectively

Spending cuts have hit training, but courses are becoming more effective, says Peter Corthine

THE RECESSION has made a substantial impact on expenditure on training, but there are some signs that what money is available is being spent more wisely than before.

The latest set of figures published by the government indicate that 1981 spending by users on data processing training declined significantly against the previous year. The Quarterly Business Monitor from the Government Statistical Office reports a decrease of 18% in 1981 compared with 1980. The second half-year was lower than the first and by December, expenditure was running at only 60% of that a year earlier.

The reason for the decline in expenditure is obvious: the recession.

It can be argued that as economic activity picks up, organisations will invest more in the development of people.

It is not yet possible to report that the trend back towards increased expenditure has begun, because the statistics necessary to support this have not yet been published by the government.

Cut-backs in recruitment by employers contribute to the decline in training which goes hand-in-hand with the recession. This accounts for the reduction in demand for training in basic skills from some sectors of the economy, and will result in a heavy demand for staff as the economy recovers.

Those organisations wishing to develop their DP activity will find their recruitment budget absorbed in the chase for trained people – by then in short supply.

An interesting trend which has been noticed during the last two years is a distinct move towards a more prudent application of the funds available for training.

Training managers have become much more concerned to plan their training programmes with increasing care. Since the early 1970s they have given great care to the selection of courses and training supplies, but more recently managers have recognised the greater need to carry out a thorough analysis of training needs and to plan programmes for departments accordingly. With proper analysis and planning, available funds are spent on the priority training demands, and arranged to correspond with the development requirements of the DP department.

> The growth of analysis training is perhaps a reflection of the complexity of systems now being considered and recognition of the need for analytical skills

Analysis and planning are foreign ideas to DP training managers. They have not learnt "new tricks", but have taken the opportunity and time to ensure that there is a wise application of training funds to developing human resources. Now the careful planning of training programmes is firmly embedded in the procedures of many companies.

A further benefit results from the current prudence in spending on training. In a great many cases training has centred upon the provision of improved methods and techniques for systems development with the emphasis on structured and disciplined practices which lead towards a better departmental performance.

The adoption of these techniques indicates a significant trend within training. The result should be "healthier" DP activity, better able to carry individual organisations into future systems developments.

The nature of data processing is changing. We refer now to Information Processing more commonly than to DP, while the proliferation of smaller systems, and increasing user-friendliness lead in the same direction – away from large centralised DP departments.

Although it may still be true that basic analysis, design and even programming skills are needed to use present-day technology effectively, the use of technology is less and less the preserve of the professional.

Training in information technology must be given to professionals from many disciplines.

The people who need basic training now may not be in the DP department, but spread across an organisation to include engineers, accountants, buyers, stock controllers and so on.

Information processing implies a far broader range of skills and capabilities than the term "data processing", and the technical skills will need development in departments beyond traditional DP. It also implies that the organisation's managers and supervisors must be given the knowledge which they need to exploit the potential of information technology.

The trend away from "pure" DP training for departmental management towards information processing and information technology has developed during the last 18 months. Data processing, which must never be ignored as an essential element in management training, is now seen as one part in the far broader field of company communications and information processing.

Another encouraging sign is a growth in interest in systems analysis. For years experts have preached the need to get the business analysis right, and inattention to this area has undoubtedly led to disappointing systems in the past.

The growth of analysis training is perhaps a reflection of the complexity of systems now being considered and evidence of a recognition of the need for analytical skills.

There has been a shift to greater flexibility in the design and nature of training programmes. This is evidenced by the demand for modular training courses with an emphasis on skills rather than roles.

Managers are demanding that such courses be taken in short intensive units linked to career development, and are insisting that training investment should provide an immediate return in the form of trainees doing productive work as soon as they complete the course. The conditions applied by the Manpower Services Commission concerning grant aid for training have changed to recognise the importance of this flexible approach.

> With proper analysis and planning, available funds are spent on the priority training demands and arranged to correspond with development requirements of the DP department

CORTHINE . . . *"Despite the recession, training has not lost its importance."*

In summary, it is clear that there was a decline in training expenditures during 1981, but there are strong indications that activity is increasing again. Some noticeable trends are the more careful planning of training programmes, greater interest in approaches which bears directly upon departmental performance, a broader base of training to incorporate information processing, and a greater concern by user management with the application of information technology.

Despite the recession, training has not lost its importance.

● *Peter Corthine is principal consultant with BIS Applied Systems.*

DP personnel must learn to understand new kind of user

Micros will add to the burdens of DP managers, says Ron Hunnibal

Waiting for Plodot

A play by default in two acts.

Act I Scene I

The scene is a typical machine room. The DPM is talking to several of his staff who are lounging in chairs around a table piled with manuals, discs, notes.

The time is shortly after a board meeting during which the chairman and the remainder of the board had given the financial director a rough time for lack of comprehensive information, particularly some new analyses required of the Purchase Ledger concerning Orders During Operating Time, or PLODOT.

The FD, still smarting, has sent his best Young Executive to persuade the DPM to start work on a system to produce this data. The YE knocks on the outer door of the machine room, waits, and when beckoned enters respectfully.

YE (*slightly pompously*): You've probably heard that there was a board meeting this afternoon. Quite important, I gather. It seems that in future we need to have the Purchase Ledger analysed like this.

(He produces crumpled piece of paper with FD's notes scribbled on it.)

YE: Any chance of you writing a quick program?

DPM (*unimpressed*): You people have already got the PL analysed over 30 ways.

YE: Yes I know. But we need to have a look at these particular tables in these ways.

(Seeing the task is more difficult than he had earlier imagined, he adds lamely –)

YE: The chairman insists on having it this way and wants it for next week's meeting.

(The DPM tosses the paper contemptuously to one of his staff and refuses to accept the invocation of the chairman's name.)

DPM: What bloody time do you think we've got? We're already working into the night, we've got over a year's programming outstanding, we've got budget cutbacks, a headcount policy and an upgrade due to start in five weeks which we need to understand, and now you want more information from the Purchase Ledger. Tell me how I do it. Whose job do I stop work on? And anyway do you know how long it will take to design a system, write it and debug it, even with our latest software tools? You've got no idea.

YE (*conscious of his weakening ground*): Look there's no need to be difficult. Both the FD and chairman need this urgently. When can I tell them it will be available? Surely you can give this priority?

DPM: Tell 'em there's no chance within six months. We just don't have the time and even with 100 contractors in couldn't do it. You guys just don't understand.

(The YE exits deeply troubled by the FD's recent thinly veiled threats concerning the YE's future should he fail to persuade the DP department.)

Act I, Scene II

(It is the YE's office. He sits slumped in his chair idly, unseeingly flicking through the pages of a business magazine. Suddenly he stops, stares, makes a few rapid calculations, looks up an address and exits eagerly.)

Act II (10 days later)

(The scene reverts to the machine room. The YE, wearing a new suit and extremely confident, enters without waiting.)

YE: Thought you might like to see some of the new tables we got out of the PLODOT data. (*And, maliciously*) Gather the chairman thinks the stuff is very interesting.

(The DPM and his staff look at first derisively at the printout, then with growing interest and then with concern.)

DPM (*suspiciously*): How'd you get this?

YE (*exultantly*): Well I realised you people are pretty busy so I went out and bought a microcomputer and some software – called Visicount or something. Took a bit of getting used to, and entering all the data took time, but we've managed it and it's been worth it. And the whole lot came out of the coffee budget with change to spare.

(YE sees their faces and stops, being concerned not to push the DPM and his colleagues too far, because he will need them in the future. He smiles ingratiatingly and adds –)

YE: Course the standard package is not quite all I want. I wouldn't mind you having a look at it and adding a few bits when you've got the time. And is there some way we can pipe the stuff from Bessie here on to my micro? I'd like to play around with some more of the data.

DPM (*now disturbed and anxious not to get involved*): Great idea! I'll think about it and then we can talk it over down the pub sometime.

(Exit YE, triumphant.)

(DPM looks at retreating figure and turns to his colleagues grimly.)

DPM: Did you hear that? We've got all this work on and now he wants us to spend our time playing around with his toy, learning new software and then has the gall to want to use our files. You can imagine what state they'll be in when he's finished with them and wants to "pipe them" – (*he grimaces*) back again.

(His colleagues stonily nod assent. One of them tries to cheer up the DPM.)

Colleague: Don't worry about it. After all it's only a one-off situation and the chairman *can* be difficult. Look. We've got to get this upgrade sorted out. What about this . . .

(They resume the discussions interrupted by the YE. Just as they are becoming engrossed there is a knock on the outer door. This time the visitor is a smartly dressed Young Man from the marketing department. He waits obediently for permission to enter and with an effusive smile he greets them.)

YM: Hello you lads. Not too busy? Good. Look I need some help. The MD has asked us if we can produce some of our sales figures in a completely different way and then graph them. Like this. Trouble is we need them really quickly.

(He puts a scribbled piece of paper on the table in front of them. The DPM and his colleagues look grimly at each other. . . .)

The End

A BANAL snippet of theatre? Or shades of reality? Neither party knows how to talk to the other. Neither has been trained for it.

The complexities of DP and the lack of desire on the part of many DP personnel to establish real communication and understanding with users can lead to considerable frustration for an industry which claims to be in the communications business.

There is an inherent need for DP personnel not only to develop their technical abilities, but also to help users to understand the constraints and capabilities which DP requires. But this is too often seen as a one-way process. DP personnel must understand and respond to changing user needs. The micro is creating a new generation of users which will add to rather than diminish the demands made on DP personnel, and their abilities to plan can only evolve properly from an understanding of user motivation.

The emphasis on training is changing from the deeply technical to a broader understanding of user functions and their expectations from the DP department. DP managers are tempted to view training in a passive and even negative way – the "We can't spare the time" syndrome.

In an industry where manufacturers regularly invest 10% or more of their turnover in R&D lack of training means that companies can lose touch with changes in technology.

"It may be more expensive, but it will do anything a micro can do."

Manufacturers themselves are moving over more and more in to services and appear to be moving into training rapidly, partly because it is their way of spreading the word about their company and partly because services represent another source of income to shore up their bottom line figures in what is becoming a tougher market place.

But although many of them offer highly technical training where direct involvement with machine technology is necessary, their training at times appears to lack flexibility and inspiration.

DP controllers need to set training objectives and supplement manufacturer training with courses from outside training organisations after they have examined their skills within the context of a plan which may extend over several years. They should recognise that standard training modules are not always the best answer and that a course geared to specific requirements usually needs to be created.

A DP controller should also be prepared to recognise that he himself needs constant training to keep in touch with technological change and user demands, over and above the useful technical training.

Regular exposure to man management and evaluation, project management and the development of understanding of accountancy, business planning, marketing and manufacturing should be an imperative part of his calendar in addition to reviews of communications, database and other state-of-the-art information.

If demands on DP training are pulling in the two directions of management and technology, then the ubiquitous micro is creating an entirely new need for knowledge. A third generation of users is emerging.

The need for a company to respond rapidly in competitive markets means that many users cannot and will not accept the limitations which their business systems impose on them. The result is that many companies already possessing large DP installations are moving (often in an uncontrolled way) into personalised computing. DP departments must recognise the reasons for this movement and take the initiative to preclude many of the resulting problems.

The arrival of microcomputing facilities introduces an in-house technology, with its own disciplines in systems design and file handling. They cannot be considered as tiny mainframes. Involvement with this technology means that DP personnel who have prior experience of microcomputing often admit that formal training is needed. DP departments must take positive steps to involve themselves in it and control it.

● *Ron Hunnibal is marketing manager for Allan D'Morias training consultants.*

Educational computing is alive and growing North of the Border

Computing is thriving in Scottish schools, says Colin MacLean

TEACHERS, education authorities and governments had a belief that the introduction of computers into the classroom was important, but had no previous experience of teaching and applying a new technology at school level, at a time when the technology itself was still being developed.

It was inevitable that mistakes would be made and that many criticisms could be levelled at the individuals and agencies involved.

One of the agencies which has been most heavily criticised is the Scottish Microelectronic Development Programme (SMDP). Government agencies such as SMDP and MEP (Microelectronics in Education Programme) exist to stimulate, assist, monitor and promote the use of computers in schools. It is not, however, part of their function to provide schools with the bulk of their hardware and software, or to provide all the in-service staff training, to give curricular and management advice or to provide the necessary staff. It is, as in all aspects of education, the local authority that decides on policy, allocates resources and manages the implementation of all large-scale developments in schools.

When it was created, SMDP was able to allocate hardware to under 100 schools and colleges covering primary, special, secondary and further education throughout the country. There was a nucleus of staff to provide a support service for these projects. Over the last two years the activities of SMDP have expanded and it now provides a focus for software exchange based on its embryonic library, an information centre used by the government, local authorities, schools and individual teachers, a technical development centre and a focus for discussion and source of ideas for those involved at a national level.

It has never been expected to provide the financial backing or the organisational framework to support the use of computers in any schools outside the small number of project centres. Most of the criticisms levelled against SMDP are based on a misunderstanding of this central point.

While every local authority in Scotland is playing an active part in these developments, different local situations and policies have meant that the strategies and tactics for development are not uniform. The developments in Lothian region give an indication of the ways in which computers are being introduced into schools.

All 48 secondary schools in Lothian region have now acquired a computing facility. Some were given hardware on loan from SMDP, some from other agencies, but most of them used their equipment allowance supplemented in many cases by PTA funds. The authority has also bought microcomputer hardware for schools and from all these sources the schools can now claim an average of three systems (plus an unknown number of machines such as Sinclairs which individual teachers have acquired for classroom use).

Despite clamours from the "experts" in the schools that felt that what was needed was more hardware, the authority took the view that the problems involved in acquiring hardware would be dwarfed by the other issues and has concentrated its efforts on identifying and tackling the full range of tasks involved.

While the main developments have so far been in secondary schools, there has been an increasing level of activity in the primary and special education sectors. There will be as many problems in these sectors as there have been in secondary, and the nature of these problems will not necessarily be the same. Preparations for the large scale introduction of computers into these schools are now being made and the staff involved are trying where possible to learn from earlier mistakes.

It must be admitted that in common with many other organisations some schools bought computers before they had planned to the very last detail exactly how they were going to make use of them. In discussion with each other, with regional advisory staff and in the light of a wide range of experiments, teachers formulate their own ideas on how computers should be used in schools.

As in many authorities, it is the individual schools that decide what is to be taught and how this will be achieved. This means that there is a wide range of applications in the schools such as computer education and the use of computers in the teaching of other subjects.

Each of these applications is independent of the others and each requires a different category of hardware, level of staff training, type of software and physical facilities. It is impossible for any one school to develop all of these areas at the same time and it is one of the functions of the regional advisers to ensure a balanced development across all schools.

In the area of computer education there is a need for introductory computer appreciation courses for pupils in the early years of secondary school (this will no doubt be extended into the primary schools in time), the provision of CSE, O-Level and sixth year courses for external examinations and the provision of non-examination courses to increase the level of awareness in older pupils (especially for pupils following non-scientific courses in the sixth year).

The extent to which these courses must involve the teaching of programming, and the particular language(s) which are taught are areas where controversy rages and where accusations of criminal negligence are most widely heard.

While there has never been complete agreement on the content of these computer courses, at least there has been a vague consensus that pupils should become familiar with the new technology, that the country needs a supply of computer literates and that the associated social and personal results of the technology should be examined.

What is much less clear, however, is the extent to which computers can help in the teaching of other subjects. There are many who dismiss computer assisted learning as a fad (probably American in origin) which will end up as so much useless hardware lying unused in store cupboards.

Before computers can be used effectively in schools, teachers must be trained in the necessary skills, must have considered the issues involved and must have adequate human, financial and physical resources within the school. There is therefore a need for a range of in-service training courses and conferences for practising teachers and for suitable pre-service training in the colleges of education.

These training courses have been given at several levels to provide for the varied needs of teachers and schools. There are familiarisation courses for teachers who need to be able to use existing software in their own teaching. There are programming courses in a variety of languages and at different levels to enable teachers to write original software, or often simply to amend existing programs. Teachers are given training in the teaching of computing as a subject. Technicians are trained in the care and repair of equipment. Senior staff feel the need to become aware of the nature of educational computing, of the resources that must be made available, of the staffing requirements and of the implications for the management of the schools and have reacted positively to the provision of courses specifically for them.

● *Colin MacLean is [illegible] adviser in microelectronic [illegible] Lothian Regional Council.*

The DoI's micros in education scheme has sparked off a lot of criticism . . . Alan Simpson reports progress

No gold stars for government micros in schools programme

AS PART of the drive to bring about the computing revolution, the government has been busy introducing microcomputer hardware and associated teaching skills into education programmes. Having concentrated on getting micros into the country's secondary schools, attention is about to be turned to primary schools.

The pace of the government's technology progress, however, is not a matter for universal praise. Critics include Labour MPs Tom Ellis, who objects to the limited selection of approved hardware, and Frank White who believes the UK should be studying Japanese and American methods of educating students in information technology awareness.

Michael Fluskey, who is closely involved in publishing and marketing micro technology textbooks, is dissatisfied with the amount of money being allocated by schools for the supply of books. He sees no reason why funds should not be channelled or earmarked towards reversing the decline in school books, pointing out that in the US, microcomputer suppliers are linking with publishers to develop school material.

The Computer Retailers Association believes that the government project fails to meet the needs of the schools. Even the National Computing Centre is unhappy with its specified role of supplying micro education to teachers from independent schools. Apparently no one can tell the NCC how many independent schools already have a micro or wish to join the scheme.

Other critics include Dr Adrian Stokes, director of computing at St Thomas' Hospital, who is involved in encouraging the provision of computing facilities for disabled people. He would particularly like to see a greater emphasis on introducing micros into schools for disabled children, along with new levels of technology which will enable handicapped children to benefit from IT developments.

THATCHER . . . Fashioning the future.

The National Union of Teachers has joined the protesters, criticising the choice of committee members of the government's Microelectronics in Education Programme (MEP), as being unrepresentative. Apparently while there are two teachers from independent schools on the committee, State schools are not represented. And with much of the MEP action being based in Newcastle, it seems that Microelectronics Education Programme policies are being kept deliberately remote.

But not all comments are critical. There is general recognition that progress has been made with a reported 5,200 out of a total 6,000 secondary schools already having joined the scheme.

John Merrifield, a training consultant with ITB, believes that the government deserves at least two cheers for its achievements.

Putting together a total package in a comparatively short time, involving the supply of hardware and practical teacher training courses, is a matter for congratulation, he says. ITB believes, however, that more use of independent training organisations would have speeded the project and Merrifield hopes that independent facilities will not be overlooked in future programmes – particularly the recently announced micros in primary schools project.

The government would appear to have taken note of Merrifield's comment as it has announced in the past few weeks that it is considering using independent organisations. The teacher training scheme has already been increased to £11.3m and may well benefit from additional State funds next year to meet the government's primary school commitment.

The MEP, funded by the Department of Education and Science to co-ordinate the micros in school projects, has a full-time staff of nearly 300. Richard Fothergill, director of MEP, admits that mistakes have been made in the past, but blames the speed with which the project was put into action.

The role of the MEP is to organise teacher training activities and provide teaching material and equipment. Already over 300 separate education computer programs have been produced, and 8,000 secondary school teachers from 104 local education authorities have attended MEP courses. As part of its aim to serve the needs of education, encouraging the use of microelectronics as teaching resources and equipping young people with skills which will exploit the economic potential of the new technology, the MEP has to liaise with the many regional and centrally-based teaching authorities.

As a result, a rather cumbersome structure has been devised with MEP-appointed national coordinators covering electronics, computers and information technology. Backing the operation is a national advisory group of experts taken from HM Inspectorate, teacher training institutions and employment authorities. Furthermore, a network of 14 regional information centres has been formed, each of which supports eight or nine local education authorities.

Matters are less confusing in central government computing circles. It is the responsibility of the Department of Industry to provide suitable levels of hardware to the schools, while the Department of Education and Science looks after the software and training requirements. Under the micros in schools scheme, the government is to provide up to 50% of the costs with the balance coming from the local education authority, the schools themselves or even parent-teacher associations.

The Department of Education and Science expresses dismay at the amount of criticism it has received. Funding, it points out, has been increased and this year alone over 11,000 teachers will have received MEP assisted training. An additional 8,000 teachers will be receiving advanced level courses. Other related department statistics include the duplication of some 5/6,000 computer system discs and the provision of related software and bulk material supplies. As part of the micro funding agreement, each school must allocate two teachers. This factor alone represents a considerable amount of organisation and liaison between education authorities around the country.

Having dealt with the secondary schools, the government has now turned its attention and funds to putting micros in primary schools. Last month, Prime Minister Margaret Thatcher announced a two-year programme which aims to have a microcomputer in all 27,000 UK primary schools. Apart from the £9 million hardware funding, an amount to be matched by local contributions, additional funds are being made available to extend the teachers training scheme.

Unlike the £3 million micros in secondary schools scheme, the choice of equipment has been increased to three with the addition of Sinclair's Spectrum.

Thatcher expects her project will fashion the future of the country in the 21st century – by which time teachers may have been replaced by robotic computer based training!

Not all local areas are awaiting their micro allocation. An assortment of Scottish agencies, authorities and government departments have got together and organised Concept 82, a conference planned for December. Representatives from industry, commerce and sixth form staff and pupils will attend the event, which aims to stimulate career opportunities in computing and microelectronics.

The academic approach is being taken a stage further at Middlesex Polytechnic with the creation of a special B.Ed degree which will prepare students to teach computing at O & A level. These Middlesex Polytechnic computing studies will apparently encourage students to combine their existing dance, drama, arts and crafts studies, an interesting option which should produce equally interesting results. Several other colleges and institutions are now actively organising computer training courses, such as The Essex Diploma course in Computer Education.

STOKES . . . Emphasis should be on providing micros in schools for disabled children.

BOOKS

Straightforward text on Basic — but the reader needs access to a 380Z

Computing Using Basic – An Interactive Approach. Tonia Cope. Ellis Horwood. 351 pp. £15.00 hardback. £5.90 paperback.

DESPITE repeated attacks by advocates of elegant, structured languages like Pascal and Comal, Basic has proved extremely resilient. Already available on most small computers, it was chosen by IBM as the first programming language to be released for its Personal Computer. The BBC recently brought Basic to the notice of a much wider public through its Computer Programme and the associated micro.

Tonia Cope's book focuses on the Basic used on the Research Machines 380Z, one of the two microcomputers which are grant-aided under the Department of Industry's *Micros in Schools* scheme (the other is the BBC machine).

According to the publisher the book is suitable for "all wishing to enter the world of computing, e.g. educationalists, undergraduates and postgraduates of all disciplines, school children, home computer users, those using computers in business, commerce," etc.

This "world and his wife" approach is seldom successful. Tonia Cope's background is in teaching, indeed her book originated as a class and self-study text at the University of Oxford Computing Teaching Centre. In an educational environment the book would be first-rate, but I believe most commercial programmers would not be at home with the application examples given. These are concerned with random numbers, sorting, simulation, statistics, computer-aided design and the creation of an index for a book.

Nevertheless, the author explains the language in a straightforward and lucid manner. But, as she herself points out, to gain maximum benefit from the book, the reader should ideally have access to a 380Z.

The first part of the book covers the elements of Basic, including graphics, and the second describes the applications already mentioned. There follow several appendices, including a description of matrices, currently not included in RML 380Z Basic and described as used on a CTL Mod. One. There is also a list of differences between 380Z Basic and other Basics.

Alan Stewart

Beginner's guide easy to use

UCSD Pascal – A Beginner's Guide to Programming Microcomputers. J. N. P. Hume and R. C. Holt. Prentice Hall International, Hemel Hempstead, Herts, 1982. 346 pp. £9.70 paperback, £14.20 hardback.

UCSD Pascal is intended for beginners who have a microcomputer to practise on. Its aim is to teach the writing of structured programs which are not only correct but clear enough to be understood by others.

In an introduction to programming, the first chapter explains the most basic terminology, shows the versatility of Pascal.

Having been taught how to do simple calculations, the student is given detailed instructions on entering, running and saving his program and correcting errors. A beginner is unlikely to absorb all this information immediately but the chapter will be useful for reference.

Instruction in the manual is given in "subsets", each one dealing with a new topic but also incorporating points studied in previous chapters. Each chapter is followed by a summary of its subject-matter, including a list of new terms introduced — a useful feature for the student who needs to check specific information later.

Exercises on the new points help the student to consolidate his knowledge at each stage. No answers are given so he will depend on his skill with the computer to solve the problems. If in difficulty, he will no doubt make use of the summaries and relevant parts of the six detailed appendices, which together make the manual an easy one to use for reference.

Rosemary Shepheard

Fortran 77 taught through practice

Fortran 77. Donald M. Monro. Edward Arnold, London, WC1, 1982. 360 pp. £9.50.

THIS is a manual for teachers to use with both programmers experienced in other languages and students approaching programming for the first time.

The introductory chapter gives a brief description of the machines involved for the benefit of the latter. The emphasis is on structured programming, now more feasible since the development of this latest version of the language. The author intends to teach efficiency and style through practice.

Chapters Two to Thirteen form the main body of the course in basic Fortran 77, with the early chapters including enough information to enable the student to start writing simple programs straight away. Facts presented in a simplified form for this purpose are discussed fully at a later stage.

Chapters Fourteen and Fifteen serve to supplement the elementary Fortran 77 already studied and Chapters Sixteen to Nineteen, dealing with advanced aspects of the language, are intended for experienced programmers.

R.S.

PRODUCTS

Graphics workstation for first time users

The new HP2647F terminal.

A MULTI-FUNCTION intelligent graphics terminal, capable of use as a powerful online intelligent terminal, an offline graphics workstation, or both, is the newest member of Hewlett-Packard's 264X terminal family.

Combined with any of HP's colour plotters, the HP2647F is a standalone graphics workstation that can be operated by users with no experience of computers, says Hewlett-Packard.

When used in conjunction with a host computer, the HP2647F is a programmable intelligent terminal capable of serving as a distributed node to the computer system. Programmers have 64Kbytes of program workspace and basic program control of flexible-disc mass storage, graphics and alphanumeric display, the terminal's programmable keyboard and some data communications functions.

A wide variety of applications software makes the HP2647F suitable for a large number of business and technical applications. The standard Autoplot/47 software enables novice users to produce professional-quality pie, bar and linear charts and text slides, and no user programming or host-computer intervention is required, says HP.

WORD/47 combines menus and command keys for text and document processing. Page formatting offers automatic page breaks, footings, headings and file merging.

Included with WORD/47 is FORMS/47 which provides an efficient way to design professional-quality forms for data entry or documentation.

The HP2647F is priced at £6,677, and current delivery estimate is eight weeks.

Hewlett-Packard (CW), Nine Mile Ride, Easthampstead, Wokingham, Berkshire RG11 3LL Phone: (03446) 3100.

Honeywell switch from 'workhorse to racehorse'

A "SUPERPRINTER" has been announced to succeed Honeywell Information Systems' Page Printing System (PPS) first launched on the UK market some five years ago.

John Macdonald, marketing director, likened the new product to a racehorse compared with the workhorse systems of the Seventies.

Known simply as the New PPS (PPS this time standing for Page Processing System, reflecting the extended capability of the new system) the latest printer retains the basic functionality of the original system — printing data and forms together, cutting paper to specified sizes, punching, stacking and collating — with, now, advanced capability in a number of key areas.

The New PPS, using a high-level software design language called FIDES, Forms/Font Interactive Data Entry System, allows forms to be printed from instructions stored on disc and ready for merging with the data in print runs.

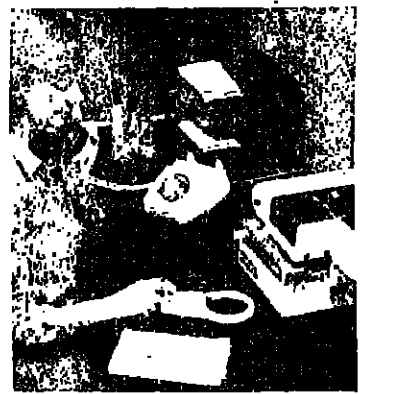
Again using FIDES, the New PPS offers a menu facility to guide users through the steps needed to create or change fonts, or simply amend individual characters.

The New PPS includes a powerful edit facility which extends the scope for interactive forms design, and enables elements of old designs to be extracted from disc for use in new forms.

A facility for turning round stored print pages through 90° or 270° (to provide page widths up to 14in) is an option in the New PPS.

The Level 6 minicomputer controller in the New PPS, in addition to supporting print functions, will also now handle traditional data processing applications.

Honeywell Information Systems (CW), Honeywell House, Great West Road, Brentford, Middlesex. Tel: 01-568 9191.



Postage re-crediting by phone.

Postage by phone-in

A SERVICE for re-crediting postage meters by telephone is announced by Pitney Bowes. UK users of the new Remote Meter Resetting System (RMRS) will be able to do postage re-crediting by phoning a computer from their office or mail room — within 90 seconds.

To operate the RMRS service, the user connects a touch tone generator to the mouthpiece of the office phone and rings the RMRS data centre.

Pitney Bowes (CW), Elizabeth Way, Harlow, Essex CM19 5BD Tel: (0279) 26731.

The Facit 4560 letter quality printer.

Letter quality printer

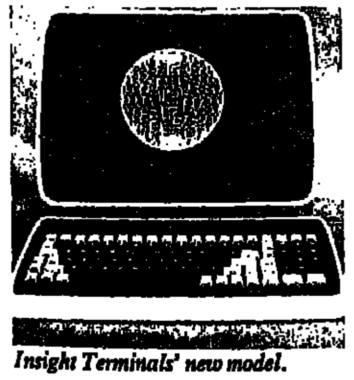
THE recently-introduced Facit 4565 letter quality printer has been supplemented with a new model, the Facit 4560. It works as a receive only terminal and is based on the Facit 8000 electronic typewriter series.

The new printer has a standard RS232C interface for handling the most common word processing functions and for easy adaptation to most mini- and microcomputer systems.

It has a plastic printwheel (daisywheel) containing 105 characters that can be extended to 112 characters. This means that one printwheel can print several languages, which is important for teletext applications.

Paper handling options include bi-directional forms tractor as well as cut sheet feeder.

Facit Data Products (CW), 105 45 Stockholm. Tel: 08-738 72 88.



Insight Terminals' new model.

Full editing functions

INSIGHT Terminals' new gdt-1 model boasts a wide range of standard features, with an end user price of about £1,300.

The gdt-1 offers a green P31 phosphor screen, 80 characters x 24 line with true descenders, detached keyboard with numeric keypad and full erase and editing functions.

The terminal which is compatible with the Tektronix 4010/4012 range can be supplied with software designed to run with CP/M operating systems.

The gdt-1 interfaces with a standard graphics printer.

Insight Terminals (CW), 178-202 Great Portland Street, London W1N 5TB. Tel: 01-631 4411.

Wide range of uses for PoS terminal

A POINT-OF-SALE terminal designed for a wide range of commercial uses is being launched by Gallid. In addition to its retail environment, it can be used in such organisations as rental businesses like television, car hire, estate agents and in builders merchants DIY, hotels and restaurants.

The Gallid PoS terminal has its own Motorola 6502 CPU and large memory. It has a 37-character display, a 35-column dot matrix printer and a RS232C serial interface for communication with a host computer.

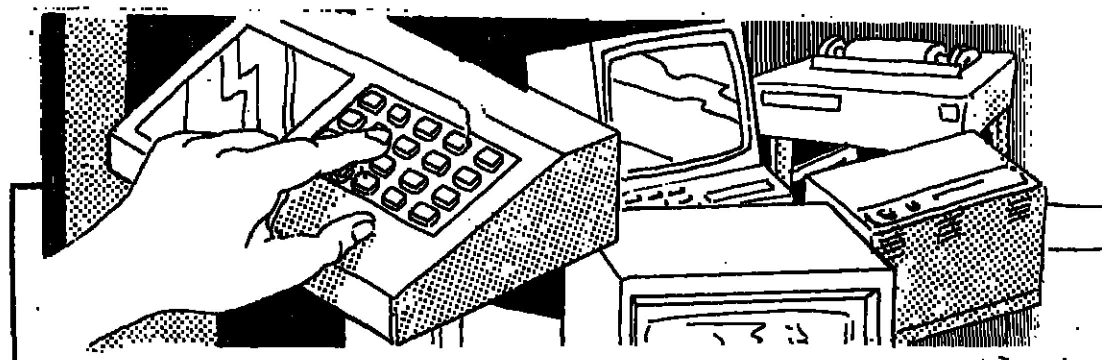
Incorporated into the unit is a standard keyboard with software controlled function keys.

Two key locks are provided for management security when producing totals and other audit information.

Should the host computer be unavailable, the terminal can operate independently by entering a standalone mode.

A full range of additional optional facilities are also available with the terminal, including full alphanumeric keyboard, modem operation, high capacity memory, bar code reader and OCR reader.

Gallid (CW), 1 Bilton Road, Rugby. Tel: (0788) 74442/3.



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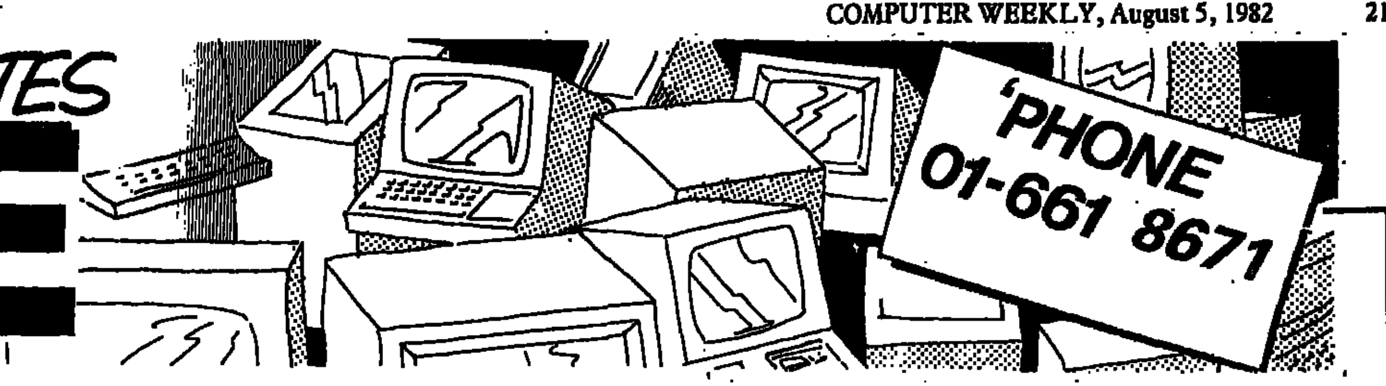

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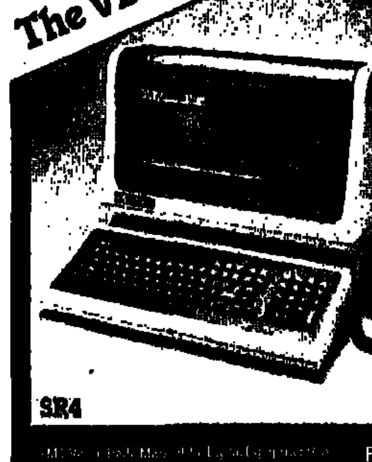

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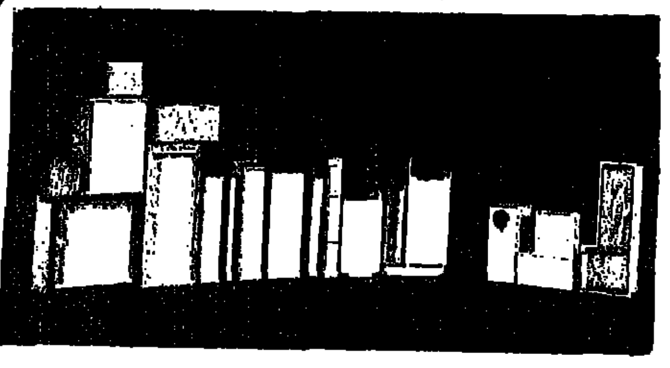

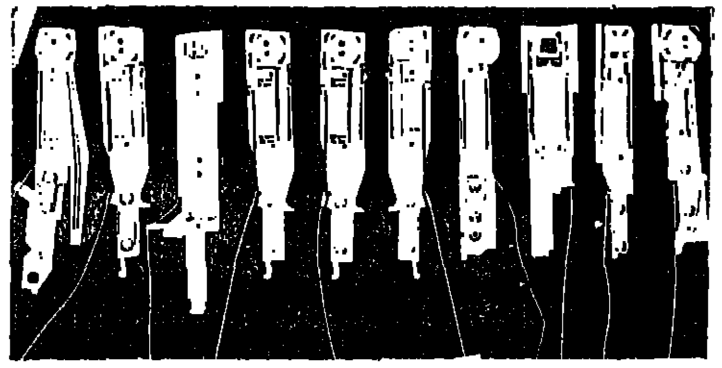

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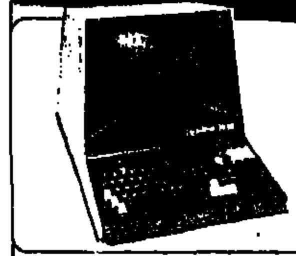

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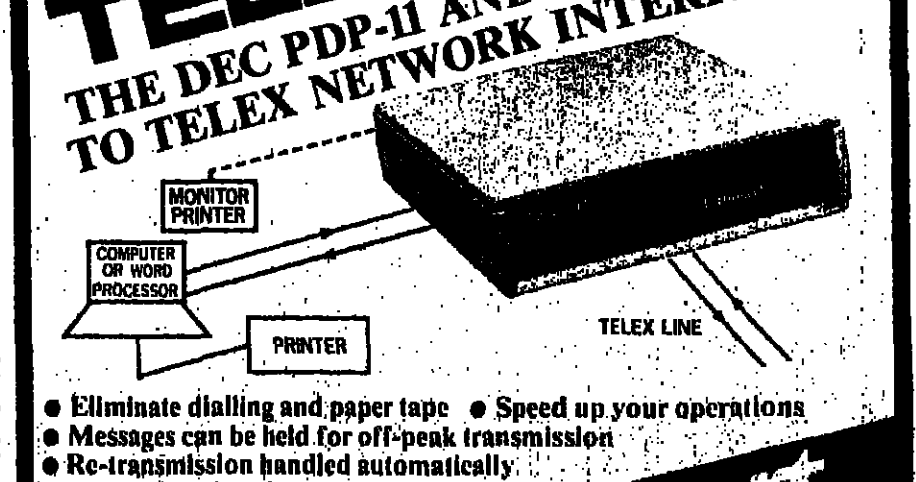

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CITY & W/END **SYSTEMS ANALYSTS** **£8-12000**

Major companies in London are currently searching for SYSTEMS and TECHNICAL ANALYSTS for a variety of developments. A good commercial background is more important than hardware. Experience of financial systems would be considered a definite asset. A good education and a mature personality will be looked on favourably for all these positions. These jobs all offer excellent salaries and usual large company benefits including BUPA, LVs and pension schemes. J.Gen

ALL AREAS **MINI/MACRO ALL LEVELS** **£NEG—FROM £8000**

Several companies in London and the surrounding areas are recruiting programmers at all levels. People with any COBOL, BASIC or FORTRAN experience would be of interest. Salaries vary according to age and experience. A good commercial programming background is more important than any particular hardware experience. Benefits include those associated with all major companies and in some cases, mortgage subsidy, bonus scheme and free life assurance apply. J.Gen

BERKS **ANALYST/PROGRAMMERS** **UP TO £14500**

Our client is looking for Analyst/Programmers with either COBOL or FORTRAN experience. The company is heavily committed to research and development within a financial environment on a variety of hardware. Candidates must possess a good commercial background and graduates are preferable. Company benefits include a subsidised restaurant, non-contributory pension scheme, sports and social club, bonus schemes, discount on company products, life assurance and discount on various holidays. J.6463

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Graphics/CAD

Netherlands : Salaries to £16K

A leading U.S. Manufacturer of Graphics and CAD/CAM Systems is currently seeking additional Technical Support Specialists to be based at its European Headquarters in Holland. Suitable applicants will be graduates with a minimum of three years' subsequent industrial experience. You should be fluent in Fortran and preferably have experience with either VAX 11/780, Prime or Hewlett-Packard-based systems. More importantly, you should have a good understanding of Graphics and/or Computer Aided Design techniques as a basis for the comprehensive product training that the Company provides. These positions will entail a degree of technical support within Europe to both existing and potential customers. Consequently, you should be accustomed to the resolution of on-site operational problems or have a desire to move into this field. Ref: L/31/A

Project Managers

Hampshire : Salaries to £13.5K

An expanding Microcomputer Systems Supplier is seeking several Project Managers for a recently-formed Development and Sales Support Division. Suitable candidates, preferably aged 28-35 years should hold a numerate degree. Actual work experience must include both an in-depth programming knowledge of an Assembler language (Intel, Zilog or Motorola-based systems) and also an appreciation of either PASCAL or 'C'. Additional experience in the development of CPM/CPM-MET/MPM operating systems and utilities is most desirable as is a knowledge of the techniques employed in the interface of advanced peripherals. Successful candidates will be called upon to participate in the formulation of product releases, assembly and work scheduling. In addition one can expect a significant proportion of liaison not only with the company's programming and design technicians but also with its Senior Managers and Directors. Ref: L/31/B

Message Switching

Gtr. London : Salaries to £15K

Communications Engineers from Programmer/Analyst to Senior Consultant level are urgently required by a leading Systems and Software Consultancy. At least two years' message or packet switching experience is essential for all positions. Preference will be shown to candidates with exposure to PDP or VAX based systems although those with experience gained on any leading mini-based system are encouraged to apply. More importantly, you should be fluent in PASCAL, FORTRAN or CORAL 66 and, ideally, an Assembler language. Applicants for the more senior positions will, in addition to man-management skills, have been responsible for the formal definition of the structures and interactions required to provide shared communication functions on at least one major system. Ref: L/31/C

Banking Consultants

Central London : Salaries to £15K

The financial division of a leading City-based Systems and Software House currently requires additional Consultants. Suitable applicants will be graduates with a minimum of five years' experience within either a Financial Institution or Management Consultancy. In particular you should offer a knowledge of one or more of the following: automatic tellers, electronic funds transfer, commodity broking, future markets or foreign exchange systems. All applicants should have been involved in the design and development of at least one complete system and preference will be given to those who have led a project team or who demonstrate management potential. Ref: L/31/D

UNIX Specialists

Inner London : Salaries to £12K

An internationally recognised supplier of Turnkey Systems has recently introduced a new range of products based around the UNIX operating system. The company now has a requirement for a number of additional UNIX-orientated Consultants and Design Specialists within its Central London facility. Suitable respondents should hold a numerate degree and be fully familiar with not only UNIX but also C, Pascal and on Assembler language. Of additional interest will be those who are currently involved in the development of a system based around a 16- or 32-bit microprocessor. The majority of development work will take place in Central London. However, a degree of mobility is essential for client visits. Ref: L/31/E

Senior Systems Designers

N. Home Counties : Salaries to £13K

A number of Senior Systems Designers are urgently required for the Advanced Systems Division of a well-established minicomputer manufacturer. At least one degree in a computer-related discipline followed by 5 years' direct involvement with systems software development, preferably gained with a leading software house, is essential. A major area of responsibility will be to provide design consultancy services across a wide number of projects and ensure that performance, functional and quality criteria are achieved. Therefore, good communications skills and high creative ability are very important, as is a software background encompassing compiler development, communications systems and block-structured languages. For candidates with high ability, advancement to Divisional Manager will be possible within a relatively short time. Ref: L/31/F

Simulation Engineers

C. London : Salary to £11K

A long-established Engineering Systems Supplier based in Central London has an immediate requirement for additional Fortran Programmers and Simulation Engineers. All respondents must hold at least one numerate degree and additionally offer a minimum of one year's postgraduate industrial experience. Whilst our clients' software and systems products are portable there is some preference for candidates who are currently Fortran programming in a PDP/VAX, Prime or Hewlett-Packard environment. For all programming and design positions, you should have current work experience on a major simulation project where you have participated in the implementation and integration of on-board real-time operational software. Ref: L/31/G

Micro Assembler Progs.

Greater London : Salaries to £9K

A number of Systems and Applications Programmers with at least 12 months' postgraduate experience are sought by an expanding total systems supplier. All applicants should have worked on an 8- or 16-bit microprocessor system and be fluent in an Assembly language. Applications Programmers will be expected to develop bespoke software and tailor existing packages for the company's large client base. Systems Programmers should have extensive knowledge of the internals of the CP/M Operating System and should be familiar with both single and multi-user environments. This small, dynamic company provides an ideal opportunity for ambitious young professionals to enhance their skills. Ref: L/31/H

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Join the team working on one of Saudi Arabia's most exciting projects

Tax-free salaries

In our search for the specialists who will be designing, implementing and operating the system – which covers Administration, Patient Management, Patient Care and Laboratory Services – based on multiple (about 200) linked 11/70s operating under RSTS/E and using DECNET, we need the following:

Senior Analyst Programmers

c. £20,000 pa tax free

You will need 5 years programming experience and at least 2 years in systems design. Your technical knowledge should include PDP 11/70s operating under RSTS/E with programmes coded in BASIC PLUS. Degree or membership of an appropriate professional organisation is essential. SR 120,000. Ref. M422/01.

Shift Leader

c. £16,500 pa tax free

You will be responsible for the day-to-day operation of the computer service, network control and supervising staff shift rotas.

An HND or HNC or membership of an appropriate professional organisation coupled with 5 years operating experience are essential. This must include one as a shift leader and one on a DEC PDP 11/70 installation. SR 100,000. Ref. M422/02.

Computer Services Officer

c. £13,500 pa tax free

To be responsible for the computer operations during a shift; initiating systems; monitoring input and distributing output; informing users of system status and taking corrective action on central hardware or on a communications failure. With your HNC or GCE 'A' level you must have two years operating experience including at least one on a DEC PDP 11/70 installation. SR 80,500. Ref. M422/03.

The tax free salaries will be paid in Saudi Riyals. The conversion to sterling has been effected at the rate SR 6.00=£1. Benefits include free accommodation, 49 days annual holiday, free return flights to the UK and free medical care. Facilities include shops, gymnasium, theatre, swimming pool, tennis courts and restaurants.

Preference will be given to suitably qualified Saudi Arabian nationals and Arabic speaking personnel.

For further details, please phone Alexander Sneddon on 01-574 5432 or send your cv to him at IAL, Aeradio House, Hayes Road, Southall, Middlesex, UB2 5NJ. Please quote the appropriate reference.

THE SANGMED HOSPITAL PROJECT: KEY FACTS

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A high calibre team is being recruited internationally by IAL on behalf of IHG. When fully operational the staff complement will exceed 3,000.

Location:
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- DATAPOINT DATASHARE Progs
- HP 3000 COBOL

UK NORTH

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- U1100 COBOL TIP/DMS
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Managers

Software Product Development

Australia c.$A 50K **Ireland c. £IR 25K**

Our client is a highly successful international computer manufacturer whose products and profits enjoy an enviable reputation worldwide. As part of their policy for maximising benefits from a local presence they are seeking to make two new appointments in their International R & D organisation. The company already has successful operating subsidiaries in the above countries which will be strengthened by a local R & D capability.

The persons appointed will initially set up a small software team. They will establish a first year's operating budget, recruit an appropriate team, integrate with local management, establish firm lines of communication with the other International R&D locations and set up initial development work in line with the overall corporate plan.

Suitable candidates will have a strong software background, but with technical experience from many other areas of computing, covering: hardware, marketing, manufacturing, field engineering and contract negotiations. They will be effective communicators, sympathetic but firm business managers and have a strong sense of team spirit.

The positions report to the Vice President of International R & D. The Australian appointment is on an attractive service contract. The Irish appointment carries a full range of executive benefits including a company car. The starting salaries allow generous room for growth within their respective grades.

Candidates should apply in confidence to Terry Harvey by sending a detailed C.V. or by contacting him for an application form.

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COVENTRY HEALTH AUTHORITY
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BASIC GRADE PHYSICIST

This new post, based in the Department of Clinical Physics & Bioengineering at Walsgrave Hospital, has been established to strengthen the computer advisory service within the Health Authority.

We are looking for a person with computer experience to help develop applications of computer technology within a variety of areas (e.g., Scientific, Laboratory, Information systems). Applicants should have a good honours science degree and an aptitude for electronic design and computing.

The salary will be on the scale £5,129 rising by annual increments to £7,537 per annum (award pending), the point of entry depending on qualifications and experience.

For an informal discussion, further details, and application forms, please contact Mr. J. A. McIntosh, Chief Physicist, Walsgrave Hospital, Coventry CV2 2DX. Tel: (0203) 613232 Ext. 482.

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COMPUTER SCIENCE AND STATISTICS DEPARTMENT

RESEARCH ASSISTANT/ DEMONSTRATOR

Required to help in the hardware research and teaching areas of Computer Science. Varied work, involving setting up a local area network for the Microprocessor Teaching Centre and providing software and hardware tools for use in both research and teaching environments. Demonstrating is for hardware related courses. Candidates should have a good first degree in computer science, electrical engineering or a related subject. Practical experience in computer hardware or real time computer systems an advantage.

Appointment for 1 year in first instance at salary in range £6,070-£6,880 p.a. (under review) plus £1,035 London Allowance. Please apply by letter, setting out age, qualifications, experience and names of 2 referees, to The Secretary, Queen Mary College, Mile End Road, London E1 4NS.

(0457)

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SOFTWARE ENGINEERS with about 6 years experience which will include programming, systems design and implementation gained in a senior role in a mini/micro environment. Experience of real time applications would be preferable.

SOFTWARE DESIGNERS will perform a consultant's role and therefore must have at least 7 years experience in systems, a developed understanding of software implementation and the ability to convey ideas and concepts in a real time environment. In addition experience of similar applications is sought along, perhaps, with some hardware or electronics knowledge.

The company is based, within easy reach of London, in some of East Anglia's most beautiful countryside. Housing is available at reasonable prices and benefits include very competitive salaries, flexible working hours, 5 weeks holiday, generous relocation package and outstanding sports and social facilities.

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CITY — **ANALYST/PROGRAMMERS** — **£NEG+MORTGAGE**

A leading City Merchant Bank has a requirement for 2 analyst/programmers with BASIC or COBOL expertise and a Banking or similar financial applications background. A minimum of two years experience is required for the more junior position and the senior should have fulfilled a supervisory role. Both positions carry a very attractive benefits package which includes Mortgage subsidy. C3914

SURREY — **PROGRAMMERS** — **£NEG+MORTGAGE**

Our client, a nationally renowned insurance company, is looking for several Programmers to enhance its development teams. Their need is for good ICL 1900/2900 Programmers with at least 2 years experience and a knowledge of MAXIMOP, IDMS and/or TPMS. Salary range is good and negotiable and is supplemented by an extensive benefits package that includes Mortgage Subsidy, Bonus and Relocation. C3888

S W MIDLANDS — **ENGINEERS** — **c£10,000**

A highly successful manufacturing company is seeking experienced Systems Engineers to work in the development of microprocessor control systems for a diverse range of industrial applications. There are excellent opportunities for persons with a degree or equivalent, real-time experience using a high level language and 2 to 3 years working experience in a related field. A good salary, enhanced by company BONUS amongst other benefits is available and where necessary RELOCATION will be paid. C4034

ESSEX — **PROGRAMMERS AND ANALYSTS** — **£'s NEG**

TIRED OF THE COMMUTING GRIND? We have identified a number of opportunities which would be ideal for Mid-Essex based applicants. We would like to hear from PROGRAMMERS, ANALYST PROGRAMMERS, ANALYSTS and SYSTEMS PROGRAMMERS, with IBM 3032/370, 4341 or GSD experience. A working knowledge of MVS, DL/1, CICS and familiarity with integrated office systems and personal computing facilities will be of special interest. R4035

SURREY — **PROGRAMMERS** — **to £11,000+BENEFITS**

Two leading companies within the Financial sector have embarked on major development projects. From 1-3 years PL/1 experience or alternatively 3-4 years COBOL in a large-scale IBM environment would qualify applicants for consideration. At the senior levels an ability to lead and motivate other staff is a pre-requisite. Both our clients can offer excellent benefits packages which include SUBSIDISED MORTGAGE. R3923

CITY — **ANALYST/PROGRAMMERS** — **to £14,000**

Several opportunities have arisen for persons with a strong programming background and sound analysis skills to join a major systems house. Excellent careers are available in either development or support roles, working particularly with Banking and related systems and software utilizing the latest DEC hardware. The attractive salary range offered is supplemented by a generous company benefits package. C3643

SURREY — **PROGRAMMER** — **to £9,000**

This company in the Medical supplies industry have a vacancy for an RPG II or RPG III programmer. The ideal candidate will have 18 months to 2 years experience, preferably on IBM GSD equipment. There will be lots of commercial development work and good promotional prospects. S3979

N LONDON — **ASSISTANT D.P.M.** — **to £11,500+BENEFITS**

A SENIOR PROGRAMMER with a sound knowledge of RPG II or III gained from working with IBM SYSTEM 34 or 38 hardware, is sought by this leading company in the Leisure Industry. The company operates an IBM SYSTEM 38 for which a wide range of commercial systems are being developed. The salary and benefits package is excellent, including re-location if appropriate. S3974

LONDON — **ALL LEVELS** — **£HIGH**

We require people with sound knowledge of RPG programming to fill our current wide range of vacancies. The right people will be able to choose the environment in which they work, as we are dealing with a host of Commercial, Manufacturing and Service Industry companies. So, if you have a year or more experience as a PROGRAMMER or ANALYST/PROGRAMMER in an RPG environment and would like to enhance your career, — it's simple, phone us today. SGEN

LONDON — **ANALYST/PROGRAMMER** — **to £11,000**

An attractive position (entailing FOREIGN TRAVEL) with an OIL INDUSTRY company. A competent RPG programmer is sought who has preferably worked in a GSD environment. This is a good opportunity for someone who would like to become involved in ANALYSIS. S3808

ESSEX — **SYSTEMS ANALYST** — **to £14,000**

This company who manufacture MEDICAL EQUIPMENT are looking for a Systems Analyst who has a manufacturing or engineering background. Ideally, the person employed will have more User than Systems experience, but knowledge of the manufacturing package MAAPICS would be an advantage. The company utilize two IBM SYSTEM 34's using RPG II programming language. S3647

CITY — **TECH. ANALYST/PROGRAMMER** — **c£9,000+MORTGAGE**

A ground floor opportunity has arisen with a major city financial organisation for a systems programmer with a good, not necessarily long, experience of the GEORGE III operating system and use of macros. An excellent career progression is offered, allied to a comprehensive benefits package, with a company currently utilizing 2900 machines and committed to upgrading with the use of the latest techniques. C4033

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ANALYST PROGRAMMERS	COBOL IBM/HP/ICL ME29	to £10K	London/Essex/Sussex/Hants
SOFTWARE ENGINEERS	Radar/Sonar	to £14K	Hants/Essex/Surrey
ANALYSTS	IBM/COPICS	to £12K	Plymouth/London/Middx.
SYSTEMS ANALYST & PROGRAMMERS	On Line exp/VMEB or K/or George 3	to £11K	Surrey/East Anglia/Bucks
SOFTWARE DESIGNERS	COBOL/PASCAL/RTL2	to 13K	Sussex
SYSTEMS/APPLICATIONS PROGRAMMERS	Strong IBM environment preferred	to £12K	London/West Midlands
ANALYST PROGRAMMERS	ICL 2956/Database/Fortran/Pascal	to £12K	London
ANALYST PROGRAMMERS	**DEC/DG/WANG/BASIC**	to £12K	Berks/Bucks
ANALYST PROGRAMMERS	RPG3/System 38	to £10K	Norfolk
SOFTWARE ENGINEERS	RADAR/Military/ATE/CORAL	to 11K	Home Counties
PRINCIPAL CONSULTANTS	Commercial Software exp/Accounting qualification. Data General COBOL	to 15K	Berks.
PROGRAMMERS	Databus/Banking	to £14K	Berks./London
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This appointment will interest programmers with upwards of two years' software experience in a development or support environment using a major operating system. Ideally, candidates should be familiar with VME/B, TP or IDMS, but Software Programmers with experience on other mainframes will be considered, as retraining will be provided.

The successful candidate will play an important part in providing technical support in a major ICL 2900 installation, with some minicomputer involvement. You would find ample scope for applying your expertise as a member of our clients' software group, typically dealing with operating system enhancement, performance measurement, development of in-house software, problem-solving and technical advice to users.

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Our client is a London based consultancy and systems house extremely well known for its work in office systems and associated technologies. They wish to appoint two senior consultants to join a team of highly experienced professionals and assist with the continuing growth of the company.

If you have worked with advanced office systems technology for at least 3 years or you are a telecommunications expert with at least 5 years experience and can include in your portfolio real experience in at least two out of: the automation of management functions in the office, open systems interconnection, and videotex, and you are looking for an opportunity to further your career, then our client would be delighted to hear from you.

Applicants should be 25-40 years old with a degree. They should also have experience in project management and consultancy in a user environment.

A background in office automation or telecommunications would appear to be most appropriate.

The successful applicants will be given the opportunity to lead projects at the front edge of the technology, involvement in the business development of the sector and marketing.

The Consultancy division in our client's company work as a tightly linked team, where at the sector level, full participation is encouraged in all major business discussions.

Application should be by a one page letter with a brief of relevant experience attached. A daytime telephone number would be appreciated. Please address your reply to Alan Simpson quoting reference MDA/100. All replies will be treated in strictest confidence.

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SALES EXECUTIVE

£20,000+ (incl commission) **Central London**

A young, dynamic company specialising in the leasing and brokerage of new and used IBM computers and peripherals seeks an enthusiastic, hardworking person to join its team. You will be calling on IBM users throughout the UK (and Europe if you speak French/German) and should have a good general knowledge of IBM equipment and want to sell. 812. ☐

DATA PROCESSING GEOPHYSICISTS

to £15,000 **Kent/London**

Progressive seismic contracting companies and major oil companies feature amongst our clients who require candidates with two years' experience. In depth technical training will be given where necessary. 9661. ☐

PROGRAMMERS

(artificial intelligence expert systems)
to £15,000
Berks/Cheshire/Overseas travel

To work on projects covering an extensive machine range, for a wide variety of innovative applications. All levels of experience needed from COBOL programmers to candidates skilled in IDMS, transaction processing and on-line systems. Training given by this leading manufacturer for those who are fluent in French or German but with limited DP experience. 854. ☐

SENIOR PROGRAMMER

£10,500 **Scotland**

Leading consultancy engineers, prospering from the oil/gas boom, need applicant with experience of real time system software. 850. ☐

SYSTEMS ANALYSTS

£13,500 **London/Home Counties**

Our client is developing a broad spectrum of computer based systems utilising advanced on-line and database techniques, using state-of-the-art hardware technology. To develop and maintain these commercial, technical and scientific computing systems you should have some programming experience and implemented one major system on any mainframe 497. ☐

PROGRAMMER

c. £8,000 **Hants**

Energetic software house seeks a COBOL programmer with at least one year's experience. 853. ☐

SYSTEMS PROGRAMMER

£12,500 **Berks**

Thames valley based software house seeks candidates with 3 years programming experience in high level and Assembler languages and ideally experience in commercial software package development, microprocessors or customer support. 630. ☐

SOFTWARE ENGINEERS

£10,000 **Home Counties/S. Coast**

Microcomputer programming (high and low-level language), microprocessor programming, ATE systems, algorithm design. If you have experience in these fields then you could become involved in some of the most advanced projects ever undertaken and work with a major UK employer where both you and your career will grow. 110. ☐

BUSINESS ANALYSTS

£12,500 **London**

Major financial institution needs someone with financial applications experience to work on the development of on-line systems. Benefits include flexitime, season ticket, BUPA and subsidised meals. 602. ☐

To be considered for these opportunities just tick the relevant box and return this advertisement with your name and address.

I do not see the job I want, but I am looking for the following:

Job Title __________

Location __________

Name __________

Address __________

CW

(0466)

Contractors The direct alternative

CONTRACTORS

The National Computer Contract Directory is a method of putting contractors and computer users in touch without either side having to resort to intermediate agencies. The potential savings made possible, to both sides, are substantial.

The following table is compiled from a survey conducted among one hundred contractors who were working on behalf of clients to whom they had been introduced by an agency. It shows clearly the distribution of payment for the various categories of contractors.

These agencies added an average of 39% (i.e. £6,836) on top of your earnings. Is that a fair reflection of the services they provide?

Category	Average Wkly Pay	Average Charge	Agency Margin	Agency Commission On Pay
Programmer	£319	£445	£126	40%
Senior Programmer Analyst Programmer	£371	£509	£138	37%
Chief Programmer Senior Analyst Programmer	£400	£569	£169	42%
Systems Analyst	£428	£570	£142	33%
Systems Programmer	£572	£780	£238	44%
Consultant/ Project Mgr	£625	£870	£245	39%

Because the first three categories accounted for over 70% of the sample, the weighted annual average is as follows .....

Annual Pay	Annual Charge	Margin	Commission on Pay
£18,040	£24,876	£6,836	39%

THE DIRECT ALTERNATIVE

For those contracting companies and clients, who make contact and negotiate directly, this margin is available for redistribution in the form of: —

- Increased earnings for the contractor; or
- Reduced costs for the client.

Purely as a guideline, we have published the following pay indicator based on a 50/50 allocation of margin: —

Category	WEEKLY RATE	47 WEEKS
Programmer	£382	£17,954
Senior Programmer Analyst Programmer	£440	£20,680
Chief Programmer Sen. An. Prog.	£484	£22,748
Systems Analyst	£499	£23,453
Systems programmer	£691	£32,477
Consultant/ Project Manager	£747	£35,109

Contracts through The National Computer Contract Directory should earn you between £2,950 and £11,500 extra annually.

AGENCIES

The ideal agency, would know of every contract and every contractor. However, few if any, contractors are registered with every agency. In order to access a realistic proportion of skills, the client must be in contact with a large number of agencies.

This means that the contractor must miss many opportunities.

Assuming an opportunity does occur, the contractor's interests are seldom of primary importance. The rate the client can afford and the commission the company is seeking are the central issues. Often, if the agency charges are too high, the client will not use the contractor, so depriving him of work and income.

DIRECTORY SUBSCRIBERS

The National Computer Contract Directory is available to every direct user of contract services. It will contain a wide choice to allow an exact match — no more compromises.

To locate contractors you simply phone and our on-line enquiry system will provide exact matches.

Name:

Position:

Company:

Address:

Tel:

SEND TO: **THE NATIONAL COMPUTER CONTRACT DIRECTORY** FREEPOST LONDON W5 2BR

THE DIRECTORY

The ideal situation is to make details of all contractors available to every major computer user. The National Computer Contract Directory is a practical system which achieves this purpose.

All entries will conform to a simple but comprehensive format which facilitates "at a glance" comparison and subscribers will be directed to entries which are appropriate to their requirement by the Directory's data centre which is designed to provide rapid response to the most exacting criteria.

The directory will be updated on a daily basis and subscribers will be able to access pre and post publication data which will be forwarded in hard copy within 24 hours.

WHAT YOU GAIN

- By releasing more income to your business you are assured of the increased profits and cash flow necessary to expand.
- This entry remains permanently in the directory — free of any charge!

WHAT DO YOU HAVE TO LOSE? ...it's free

DIRECTORY ENTRY DETAILS

IN CASES OF CONTRACTORS EMPLOYING MORE THAN ONE SPECIALIST WORKER, A SEPARATE FORM MUST BE COMPLETED FOR EVERY SUCH WORKER. IF THIS APPLIES TO YOU, EITHER (a) PHOTOSTAT THIS FORM OR (b) INDICATE, IN THIS BOX, HOW MANY ADDITIONAL FORMS YOU REQUIRE. ☐

NAME: –
ADDRESS
TEL. NO.:
NO OF YRS IN DATA PROCESSING:
PREFERRED UK WORK LOCATIONS:
WILL YOU CONSIDER WORKING ABROAD?

JOB CATEGORIES

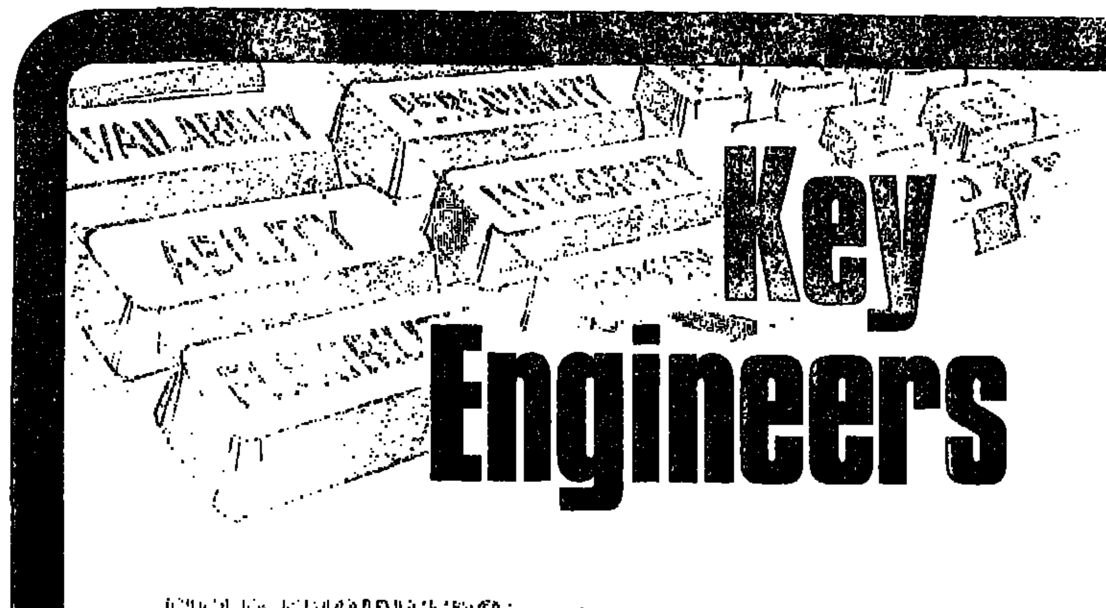
CATEGORY	NO OF YRS	CATEGORY PREFERRED
PROGRAMMER		
ANALYST		
ANALYST PROGRAMMER		
SYSTEMS PROGRAMMER		
CONSULTANT/PROJECT MANAGER		
OTHER – SPECIFY		

HARDWARE EXPERIENCE MACHINE(S)	MONTHS	PROGRAMMING LANGUAGES E.G. APL, FORTAN ETC	MONTHS	APPLICATIONS SOFTWARE E.G. CICS, TOTAL ETC	MONTHS	SYSTEMS SOFTWARE E.G. DOS, MVS, ETC.	MONTHS	APPLICATIONS E.G. PAYROLL, ORDER ENTRY ETC	MONTHS	ENVIRONMENT E.G. BANKING MANUFACTURING ETC.	MONTHS

FURTHER INFORMATION: (NOT MORE THAN 50 WORDS) PROGRAMMERS ARE ADVISED TO DESCRIBE THE DEPTH OF THEIR PROGRAMMING EXPERIENCE AND ANALYSTS SHOULD LIST THOSE AREAS OF SYSTEMS ANALYSIS IN WHICH THEY ARE EXPERIENCED I.E. FEASIBILITY STUDIES, SYSTEM DESIGN, PROJECT RESPONSIBILITY, USER INVOLVEMENT, MANAGEMENT EXPERIENCE ETC. IN ADDITION YOU SHOULD MENTION ANY SPECIALIST EXPERIENCE YOU FEEL IS RELEVANT TO THE CURRENT MARKETPLACE.

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611



Key Engineers

FIELD ENGINEERS West of London from £10K + Car

System Industries is the world's largest independent supplier of disk memory systems for mini-computers.

With Headquarters at Milpitas California, the company has progressively expanded its operations, opening offices throughout the UK and Europe.

Their excellent reputation for service has contributed to the delivery of over 10,000 disc systems since 1971. Current expansion of the service facility at the European headquarters in Woking leads to a requirement for further Field Service Engineers to maintain systems both in the UK and Europe.

Candidates offering two years' experience of DEC systems and or large CDC disc drives will be of particular interest although consideration will be given to applicants from a Data General background.

Salary ranges from £8 – 10K + S/By, Car, Free BUPA and Extensive fringe benefits. (Ref CW071)

SITE ENGINEER London £12.5K + car

A major manufacturer offers the opportunity to work at one of the most varied and interesting sites in the UK. A wide range of equipment is installed from 16 bit to 32 bit Super Minis.

Candidates for this post must possess the inter-personal skills to maintain and develop the close working relationship with a prestigious customer.

You have a sound technical background, component level ability, together with several years' experience of minis or mainframes.

In return, a career opportunity, ongoing training and a salary of c £9K + Shift allowance + Car + Benefits package. (Ref CW072)

FIELD ENGINEER London £11K + car

You are offered the opportunity to work with a major international organisation on today's most advanced IBM compatible equipment.

Our client recognises the important contribution of the Field Service Team in maintaining its leading position in the industry and reflects this by offering ongoing training, an excellent financial package and genuine career progression.

Ideally applicants will have in excess of two years' experience of large systems and the ambition to succeed.

Salary £8 – 9K + O/T, S/BY and an excellent benefits package. (ref CW074)

[illegible] Home Counties £11K + car

Our client is a leading manufacturer, maintaining its position at the forefront of fail-safe technology. Offering a range of products through micros, mini's and data communications, the company has an in-depth commitment to both the commercial and scientific market places.

A Senior Engineer is required to be trained on and maintain a wide range of products. Candidates for this important role must have substantial technical ability obtained in a mini or mainframe environment coupled with a mature customer presence.

Salary C£9.5K + O/T, S/By + Car and Extensive fringe benefits. (Ref CW073)

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

0470

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NORTHERN REQUIREMENTS INCLUDE:				
ICL	VMEB	IDMS	**SNR PROG**	MID TERM
IBM/ICL	MVS/DME	COBOL FILETAB	**PROG**	LONG TERM
DG CS RANGE ICOS		COBOL	**ANAL/PROG**	MID TERM
IBM 8100 DPPX			**SYS PROG**	MID TERM
HP 3000		FORTRAN	**PROG**	SHORT TERM
IBM SYSTEM 34/38		PRG III	**ANAL/PROG**	LONG TERM
IBM 4300		COBOL CICS/DLI	**ANAL/PROG**	LONG TERM
IBM SERIES 1	EDX/EDL		**PROG**	MID TERM
ICL 2955	DME	COBOL	**ANAL/PROG**	MID TERM
ICL 2955		COBOL	**SYS ANAL**	LONG TERM
ICL 1900	IDMS	COBOL	**ANAL/PROG**	MID TERM
ICL 2960	DME MATS		**PROG**	MID TERM
IBM SYSTEM 34		RPG II	**PROG**	MID TERM
ICL	VME	S3	**SYS PROG**	LONG TERM
SOUTHERN REQUIREMENTS INCLUDE:				
BURROUGHS	MCP	COBOL	**PROG**	6 MTHS
IBM	MVS	ASF/VTAM	**SYS PROG**	4 MTHS
IBM		ADABAS	**ALL LEVELS**	6 MTHS +
IBM	DOS/OS	COBOL CICS	**PROG**	4 MTHS +
IBM	DOS/VSE	COBOL CICS OR VSAM	**PROG**	3 MTHS
IBM		FORTRAN/MARK IV	**PROG**	6 MTHS +
IBM	MVS	COBOL OR ASSEMBLER	**PROG**	3 MTHS +
IBM	MVS	PL1 OR COBOL OR DL1	**PROG**	3 MTHS +
IBM	MVS OR DOS	PL1 + CICS	**PROG**	6 MTHS +
IBM	SYSTEM 38	RPG III	**PROG/ANAL**	3 MTHS +
ICL	2900 VMEB	COBOL OR IDMS OR TPMS	**ALL LEVELS**	6 MTHS
ICL	ME29 TME	COBOL	**ALL LEVELS**	6 MTHS
ICL	SYSTEM 10/25	DMF II OR III	**ALL LEVELS**	6 MTHS
PDP 11		MUMPS	**PROG**	6 MTHS

With our reputation, it's not surprising that you will find us extremely helpful when dealing with your personal requirements. We will treat your experience in a responsible fashion and provide you with help on the benefits of working with SCR, including taxation and company law. If your experience is not reflected in the above opportunities call us and we will do everything possible to obtain an assignment for you that matches your needs.

For **Northern** opportunities call **Barry Hadfield** on **061-833 0427** or 061-338 3319 (evenings until 9 pm). For **Southern** opportunities call **Chris Whetherly** on **01-935 0671** or 0252 874195 (evenings until 9 pm). If you are overseas or unable to telephone, please submit a curriculum vitae to our London or Manchester address.

TEMPORARY ASSIGNMENT GROUP

SCR

Specialist Computer Recruitment Ltd

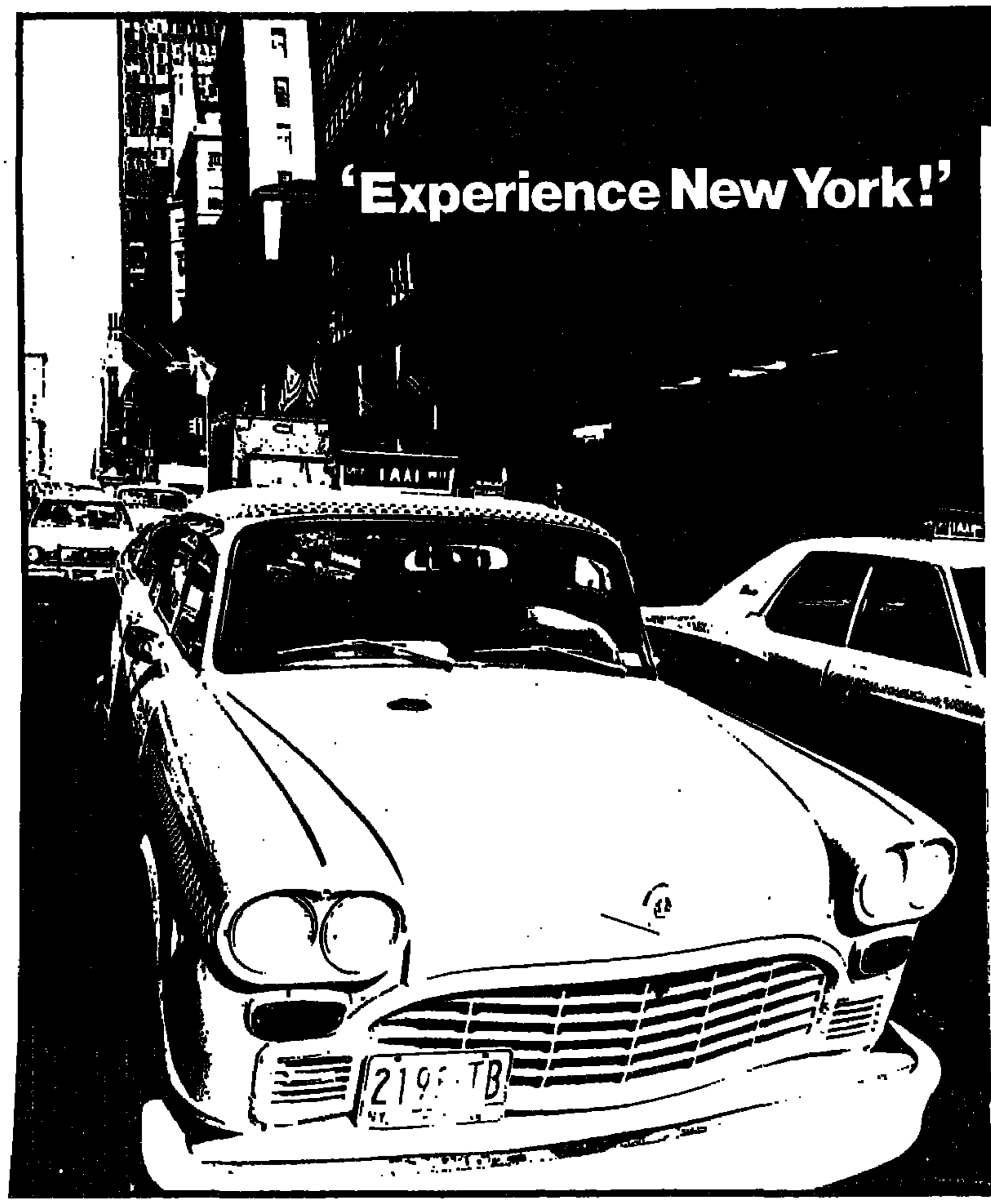
SOUTH
James House, 45 James Street
London W1M 5HS
01-935 0671/486 0461

MIDLANDS & INTERNATIONAL
35 37 Great Charles Street
Queensway, Birmingham B3 3JY
021-236 3781

NORTH
Blackfriars House, The Parsonage
Manchester M3 2JA
061-833 0427

BELGIUM
Avenue Louise 327
Boite 4, 1050 Bruxelles
010 322-640 7151/71

HOLLAND
Willemsparkweg 92
1071 H M Amsterdam
010 3120-760947



Analysts c.$35,000 p.a.

Opportunities:
Systems Analysts, preferably with accounting or insurance background.

Our Client:
Home Life Insurance Co., one of the top life and medical corporations in New York.

Location:
Broadway, New York City.

Assignments:
Selected consultants will be assigned by us to our clients on 12 months (extendable) contracts.

Tasks:
Define enhancements to, and assist in further development of a major life assurance software package installed on IBM 3033 in MVS CICS TSO/SPF environment.

Rewards:
c$35,000 p.a. in contract fees plus
–relocation allowance
(marital status no problem)
–paid return air fares
–assistance with formalities
–interest free loan for initial costs
–on-the-spot support from our NY office

Timescale:
Initial interviews shortly in London, Birmingham or Manchester, selection by client in London early August, assignments start in September. Alternative arrangements if necessary to allow for holidays.

Action:
For more details and to register interest phone Mary Coleman on **01-836 8411** (24 hours, reverse charges accepted during office hours), or send full career resumé to her at **Computer People International, VLI House, 68-69 St. Martin's Lane, London WC2N 4JS.**

Computer People International

PROGRAMMER AND PROGRAMMER ANALYSTS

IBM 4331 DOS VSE COBOL AND RPGII CICS USEFUL— MINIMUM 1 YEAR'S EXPERIENCE

Dear future Employee,

Our client, Afia Worldwide Insurance is seeking to augment its programming staff with people to work on new and existing projects.

Their need is for experienced Cobol and/or RPGII programmers with good IBM expertise. Afia already have a development team of 20 people, all of whom are totally committed to an exciting future. This American owned company is truly Worldwide and their computing facilities are being actively upgraded and expanded to meet growing business. In return they offer highly competitive salaries and are Prepared To Paywhat is necessary for candidates with the right skills; a pleasant working environment in the City Of London; an excellent training programme will be provided.

This is a Company who cares about its staff so vacancies are Rare . . .

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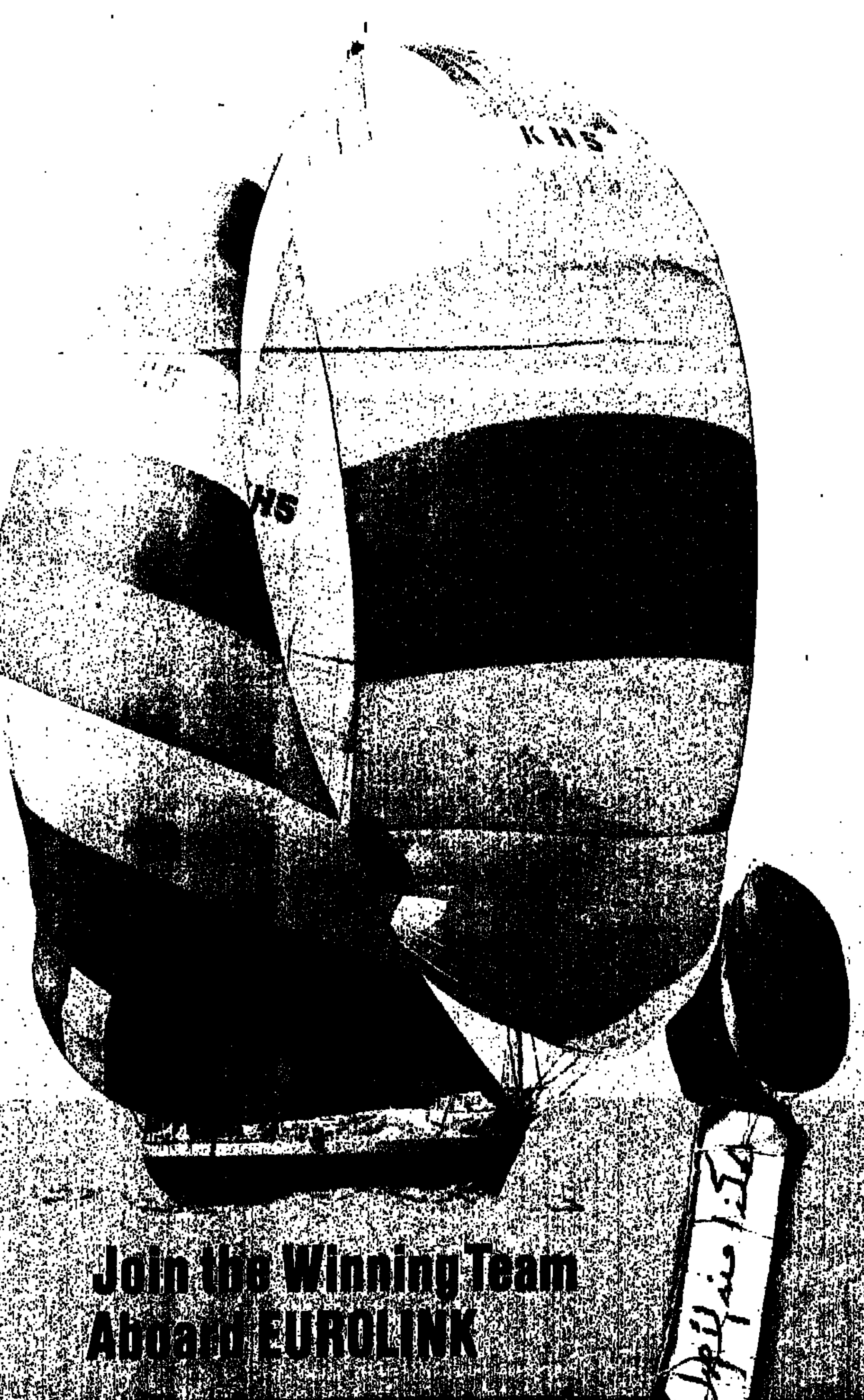

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IBM PL1 IMS
IBM PL1 CICS
IBM CICS DL1

50 contract vacancies in C. London, N. and S. H. Counties, S. and S.W. England

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SOUTHERN ENGLAND

IBM

DOS/VSE	ANAL/PROGS.	DBASE ± CICS	PL1
DOS/VSE	PROGS	DBASE ± CICS	PL1
DOS/VSE	PROG	CICS/DL1	COBOL
DOS/VSE	PROG	IMS	COBOL
DOS/VSE	PROG	BACS	COBOL
DOS/VSE	ANAL	BACS	
DOS/VSE	SYS PROG	CICS/DL1	ASSEM
DOS/VSE	PROG	DL1	COBOL
DOS/VSE	PROG	TOTAL, ENVIRON	COBOL
DOS/VSE	PROG	TOTAL, MANTIS	COBOL
DOS/VSE	PROG		MARK IV
OS/MVS	SYST PROG		ASSEM
OS/MVS	ANAL PROG		MARK IV
OS/MVS	ANAL/PROG	VSAM, TCAM	COBOL
OS/MVS	ANAL/PROG	IMS/DB/TSO	PL1
OS/MVS	ANAL/PROG	CICS	PL1
OS/MVS	ANAL/PROG	ADF	COBOL OR PL1
OS/MVS	ANAL/PROG	CICS, IMS	PL1 OR COBOL
OS/MVS	ANAL/PROG	± IMS	PL1
OS/MVS	PROG	VM/CMS	COBOL
OS/MVS	ANAL/PROG	CICS	COBOL
OS/MVS	PROGS	IMS	COBOL ± ASSEM
OS/MVS	PROGS	IMS ± CICS	PL1 or COBOL
OS/MVS	TECH CONSLT	IMS	
VMPS	ANAL/PROG	ADRS	APL
SYS 3	ANAL/PROG		COBOL, RPG II
SYS 38	PROG		RPG III
	ANALYST	GEN INSUR	
	ANALYST	LIFE INSUR	

DEC

VMS	PROG		BASIC OR COBOL
AIMS	PROG		

ICL

VME/B	PROG/DES	IDMS	COBOL
VME/B	PROG/DES	TP	COBOL
VME/B	3 PROGS.		COBOL
VME/B	2 ANAL/PROGS		COBOL
VME/B	PROG		S3

VARIED ASSIGNMENTS

PRIME	LEAD PROG		COBOL
NCR VRX	ANAL/PROG	± TOTAL TRANPRO	COBOL
UNIV EXEC 8	ANAL/PROG	± SYS 2000 DB	COBOL
BURR 6800	PROGS	IMS II	COBOL
BURR	PROG	MED. SYST.	COBOL
DATAPOINT	PROG		DATABUS
HP3000	PROG	IMAGE, VIEW	COBOL
HP3000	ANAL/PROG	IMAGE, QUERY	COBOL
HL6, HL66	PROGS	± IDS, TDS	COBOL
DGMV 8000	ANAL/PROGS	± INFOS	COBOL
INTEL 8086	S/W ENG		PLM86
INTEL 8086	S/W ENG		CORAL66
MICRO	BUS ANALS	FOR EUROPE	

MIDLANDS & N. ENGLAND

IBM

DOS/VSE	PROGS	DL1 CICS	PL1
OS/MVS	ANAL/PROGS	DBASE ± CICS	[illegible] ASSEM
	PROGS		
[illegible]	PROGS		COBOL

MISC

[illegible]	PROGS	[illegible]	COBOL
		[illegible]	

REALTIME OVERSEAS

[illegible]	[illegible]	[illegible] FLIGHT SIM	[illegible]
[illegible]	[illegible]		ASSEM
[illegible]	SOFTWARE	[illegible]	

UCA

IBM COBOL PROGRAMMERS

VICTORIA to £8,500 + MORTGAGE ASSIST.

A very good chance here to use your COBOL & DL/1 experience to full advantage. This is a Bank with a difference, where effort and responsibility are rewarded. Exciting new Real-Time applications, and you do not need a Banking background. CW 31/1

SENIOR PROGRAMMER

CITY to £9,000

A world-famous publishing organisation is interested in engaging a Senior Programmer with UNIVAC COBOL experience. The selected applicants should have a mature outlook and have the drive to get on. The working environment is excellent and career prospects look good. CW 31/2

SYSTEMS ANALYST

N. LONDON to £12,000

If you are career minded and enjoy the hurley burley of a Software House/Service Bureau environment, then you will enjoy working with this young progressive company. They have developed a niche in the market place within the Mini Computer field, which is now paying dividends and all types of Real Projects are in hand. Ring for details. CW 31/3

SENIOR SYSTEMS ANALYSTS

CITY to £13,750

A major dual ICL 2960 User is developing Real Time Systems within the Transport Industries, and requires top-grade analysts to fit into the following four applications slots

— Personnel — Financial — Statistical or Inventory Control

Working for this large stable company will enable you to expand your experience to the full and stand you in good stead for the future. Company benefits are outstanding. CW 31/4

CONSULTANT/PROGRAMMERS & ANALYSTS

CITY to £10,000-£18,000

If you are in the age range of 25-35 with a good degree or equivalent, and the multiple skills of having worked in more than one Commercial environment, then now is the chance to benefit from your background. Three major manufacturing consultancies require your skills now as a Programmer Analyst or Project Leader. CW 31/5

RPGII/III PEOPLE

HOME COUNTIES to £10,000

We are looking for experienced RPG Systems 34/38 Programmers and Analysts Programmers for multi various vacancies in C. London, Enfield, Bromley, Horsham and South West Midlesex plus other locations. All these companies offer super opportunities for career progression plus relocation expenses and one offers banking perks. Please ring now. CW 31/6

ANALYST/PROGRAMMER

KENT to £10,000

How is this for an opportunity? A major commercial organisation can offer not only reduced tour fares but also assistance with moving and expenses. You have to provide an ICL COBOL background or TOTAL experience plus the ability to supervise a small team of programmers. CW 31/7

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DEC VAX YES	N. LONDON
IBM COBOL MVS	S. ENGLAND
IBM DOS/VSE SYSTEM PROG.	C. LONDON

Please ring Alan on 01458 8535 for freelance details

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We are expanding faster than any other computer company in the U.K.; and over the next twelve months need to increase our field engineering force by 50%.

This is a direct result of continued development and success in providing complete system solutions to satisfy our customers' needs and deep market penetration by our first class sales force.

If **you** want to be a winner and join a company buzzing with excitement, setting a pace which our competitors envy, we want to hear from you without delay.

High calibre engineers with a background in computer systems maintenance, ideally, **but not necessarily** on the equipment listed, should send their applications on the form provided as soon as possible. Alternatively, telephone Digby Dyke or Moira Hassall on 0905 611512 during office hours, or 06845 2210 evening and weekends. All applications will be treated in the strictest confidence.

Name__________
Address__________
Telephone ______ Age ___ No. of years experience ______
Employer ______ Salary ______

Openings exist in the following areas — please tick preference
Central London & West End☐ North London, Herts & Essex☐ Slough & West London☐ B'ham & West Midlands☐ Coventry☐ Leeds & North East☐ Tyne & Tees☐ Manchester & North West☐ Chesterfield☐ Glasgow☐ Aberdeen☐ Bristol & South Wales☐

Please indicate in this next section your equipment experience
PROCESSORS DEC PDP 11/04☐ 11/05☐ 11/34☐ 11/35☐ 11/60☐ 11/70☐ VAX11/780☐ 11/750☐ Others☐
DISC DRIVES CDC 9760SMD☐ 9762☐ 9764☐ 9766☐ CDC9746☐ MEMOREX 660☐ DR130☐ 40☐ 3200☐ AMPEX DM4400☐ DEC RK05☐ DEC RP06☐ Others☐
LINE PRINTERS CDC BAND 9383☐ 9386☐ CDC DRUM 9322☐ CENTRONIX MATRIX 702☐ 703☐ DRI MATRIX 6630☐ 6335☐ QUME DAISY SPRINT MICRO 3☐ DIABLO DAISY HI-TYPE☐ TALLY 2000☐ DEC LA 36☐ LA180☐ Others☐
TAPES DIGI DATA 1700☐ DEC TU10☐ TE16☐ Others☐
FLOPPIES DECRX01☐ RX02☐ Others☐
VDU's DEC VT50☐ VT52☐ VT100☐ HAZELTINE 1000☐ 1500☐ CDC 92423☐ 92452☐ LYNWOOD GD1☐ NEWBURY☐ PRAGMA☐ Others☐
Other information you would like to give

Please detach and return to:—
FREEPOST, COMPUTER PERSONNEL & EXECUTIVE DEVELOPMENT ASSOCIATES LIMITED, WORCESTER WR1 1BR (No stamp necessary)

Computer Personnel & Executive Development Associates Ltd.
Old Bank House, Bank Street, Worcs. WR1 2EW

Philip Hunter examines changes being rung in the contract programming market

How staff directories could force the agencies to change

EXPERTS DISAGREE about whether an upturn in the contract programming market — predicted by the agencies — has come about. But it is certain that the market is thriving in some specialist areas, while demand for people of limited skills seems still stagnant.

Most significant for programmers, operators and analysts with itchy feet is that demand from the US for UK contract staff has shot up. The VLI Group, one of the leading UK contract agencies, sent 60 programmers to Kentucky on one contract in March. Probably about 400 UK contract staff will go to the US this year, mostly for work on IBM sites.

Even somebody short of the highest skills may find work in the US. Brian White, chairman of Richmond-based KPG Computer Services, reports that the standard Cobol programmer — or so-called "Cobbler" — can find contracts in the US, particularly in California.

NORRIS . . . Unruffled by threat of competition.

The good news from the US has been overshadowed to a degree by a decline in demand from Europe for UK contract staff. Demand from Holland, West Germany and Scandinavia has been particularly hard hit. About four years ago these countries offered a rich source of work for UK professionals, but now the vacancies are being filled by their own nationals.

At the same time UK contract staff have been reported to be reluctant to take up appointments in Scandinavia because of the high cost of living and the lure of bigger pay packets and sunnier climates elsewhere.

These attractions abound in the Middle East, which has maintained a steady pull on our programmers throughout the UK recession.

According to White, the most important attribute — more important even than an impeccable CV — of someone seeking contract work in the Middle East is a warm, outgoing personality.

"Arabs love an outgoing personality, people who take their personality to them," says White.

The contract market became established here in the early 1970s, and since then has been dominated by the agencies. They operate by maintaining files — often computerised — of contractors' career details. Client companies approach the agencies with a particular requirement, and the agencies try to meet this from the staff detailed on their files.

The agency will be usually able to offer a few candidates to the client company for interview. Most clients will pay the agency a weekly or monthly fee for any staff taken on. This fee ranges from about £400 a week for a junior Cobol programmer to over £700 for some specialists in systems software. The agency takes a cut out of this fee, typically 25% to 30%, and hands the rest to the contractor — usually on a weekly basis.

This balance between client, agency and contractor could be disturbed when a new contract directory, now being prepared, is launched in September. This directory, to be published by London-based DP Recruitments (DPRL), will give names, addresses and career details of people available for contract at the time of publishing.

Companies interested in using the directory would take out a subscription for it of about £500, approach contractors who seem to have relevant experience, arrange interviews and negotiate terms directly. In this way they would avoid paying fees to an agency.

A few experienced contractors already negotiate terms directly with their employers, so it seems likely that the DPRL directory will make an impact on the contract market.

The directory will interest many contract staff because of the effect it could have on the way they are taxed. It could nullify the threat of legislation to tax at source contractors who form limited companies, but still find work from, and are therefore paid by, agencies. By dealing with clients directly, contractors would be clearly self-employed and so able to pay their tax on a year-by-year basis under Schedule D.

DPRL director Thomas Kaye reports that nearly 3,000 contractors responded to an advertisement about the directory in the computer trade Press early this year.

Most of the agencies scoff at the idea of a contract directory, although the VLI Group said it might consider offering a rival service if DPRL's venture proved successful. "We are watching the contractors' directory scene very closely," admitted VLI marketing director Anthony Lambie.

A more typical reaction to the directory planned by DPRL is that of Alan Norris, the chairman of London-based agency Computastaff. "What most systems managers want is to be given the CVs of just a few

WHITE . . . "Arabs love an outgoing personality."

contractors who really want the job," he says. In other words Norris thinks that there would be too much work for DP managers in arranging interviews and making phone calls if the directory were their source of temporary labour.

Another criticism of the directory is that the information will go out-of-date too quickly, as some of the contractors listed as available find work, while others not on the list finish contracts and become available. According to Kaye this last problem could be solved by sending supplements to subscribers every month. These would list contractors who have declared themselves available during that month.

The master stroke is yet to come — a move onto Prestel. Kaye hopes that this will happen soon after the launch of the directory in September — provided the subscriptions roll in.

If the DPRL directory proves successful, the agencies can respond in two ways — by improving their service through making more effort at interviewing, and by cutting their fees.

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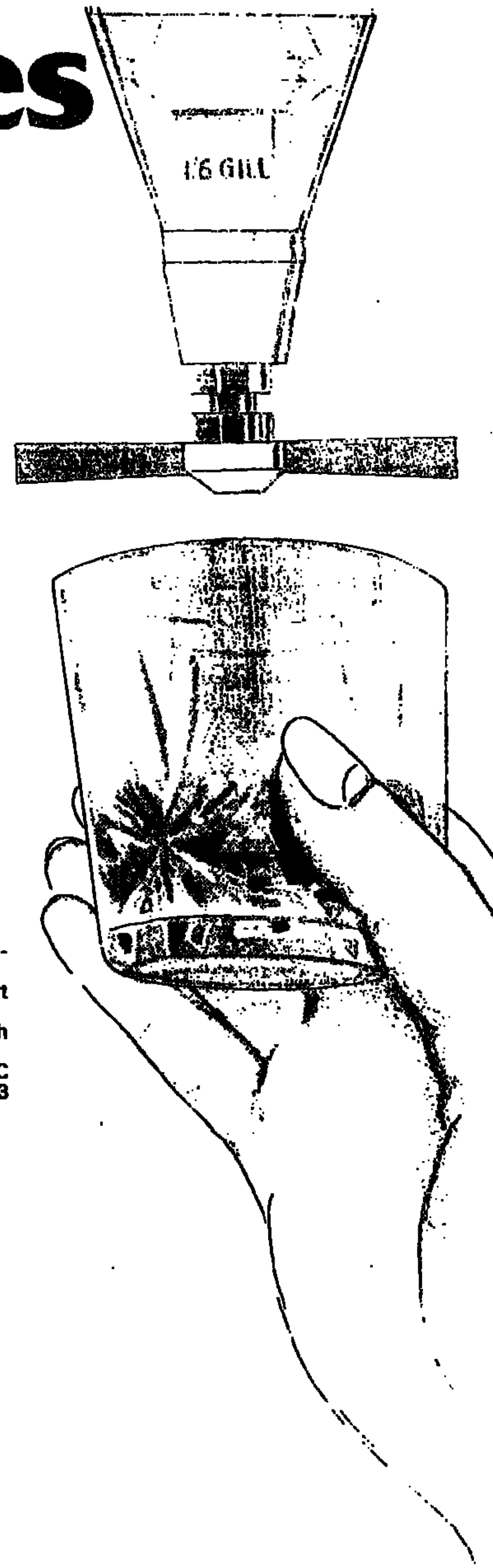

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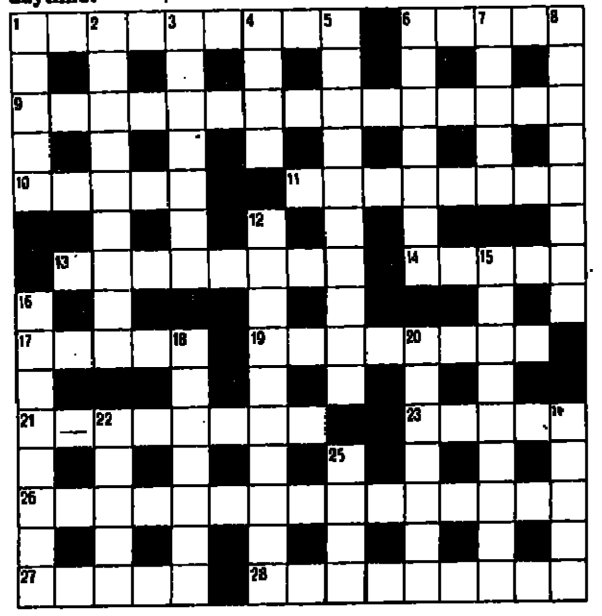
CROSSWORD

Prize Crossword No 31

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, August 13. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name..(Miss, Mrs, Ms, Mr)

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I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed .... Date ....

ACROSS

1. Sheer strength gets mother in the police (4,5)
6. Younger son acted foolishly (5)
9. Where the washing hangs out? At every point (3,5,3,4)
10. Label attached to American exotic flower (5)
11. Investor is suffering a setback, for example, in drink (8)
13. Gloomy friend's returning to hospital with rash (4-4)
14. Set of principles, Oriental, stupid by the sound of it (5)
17. A better solicitor, after abandoning the West? (5)
19. Hurtles madly, ultimately furious, unsparing (8)
21. Settled in advance, for instance standing in for a person (8)
23. A visitor being entertained, 'e's thrown into the canal (5)
26. Awfully vain UN comic, mute, giving nothing away (15)
27. Leader of dissidents is boring, producing daggers (5)
28. Hurried round Scottish loch utilised for motive power (9)

DOWN

1. Intended the writer to take precedence over the worker (5)
2. Egg almost forced into sick associate in a wrong way (9)
3. Noisy ancient, having drink, collapses (5,2)
4. One caught in right storm (4)
5. Small child coming in begs for rises for ballet-dancers (10)
6. Feminine garment's edge is caught in Church (7)

7,8 Achieving the desired result, like a conjuror? (5,3,5)

12. I accept your conditions, being sufficiently blonde, perhaps (4,6)
15. Henry, a good man, cries pitifully in an emotional outburst (9)
16. Big 'ouse set up, with board and lodging free (3,5)
18. Systems of government responsible for dispersing émigrés (7)
20. Suitcases, etc., are a joke in a one-seater sledge (7)
22. They're curious, to some extent, to come again (5)
24. Step that's traditional around the East (5)
25. Travelling salesman turning up carries one for support (4)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.

2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.

3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.

4. Winners will receive their prizes during the month following the competition.

5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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NEW CHALLENGE

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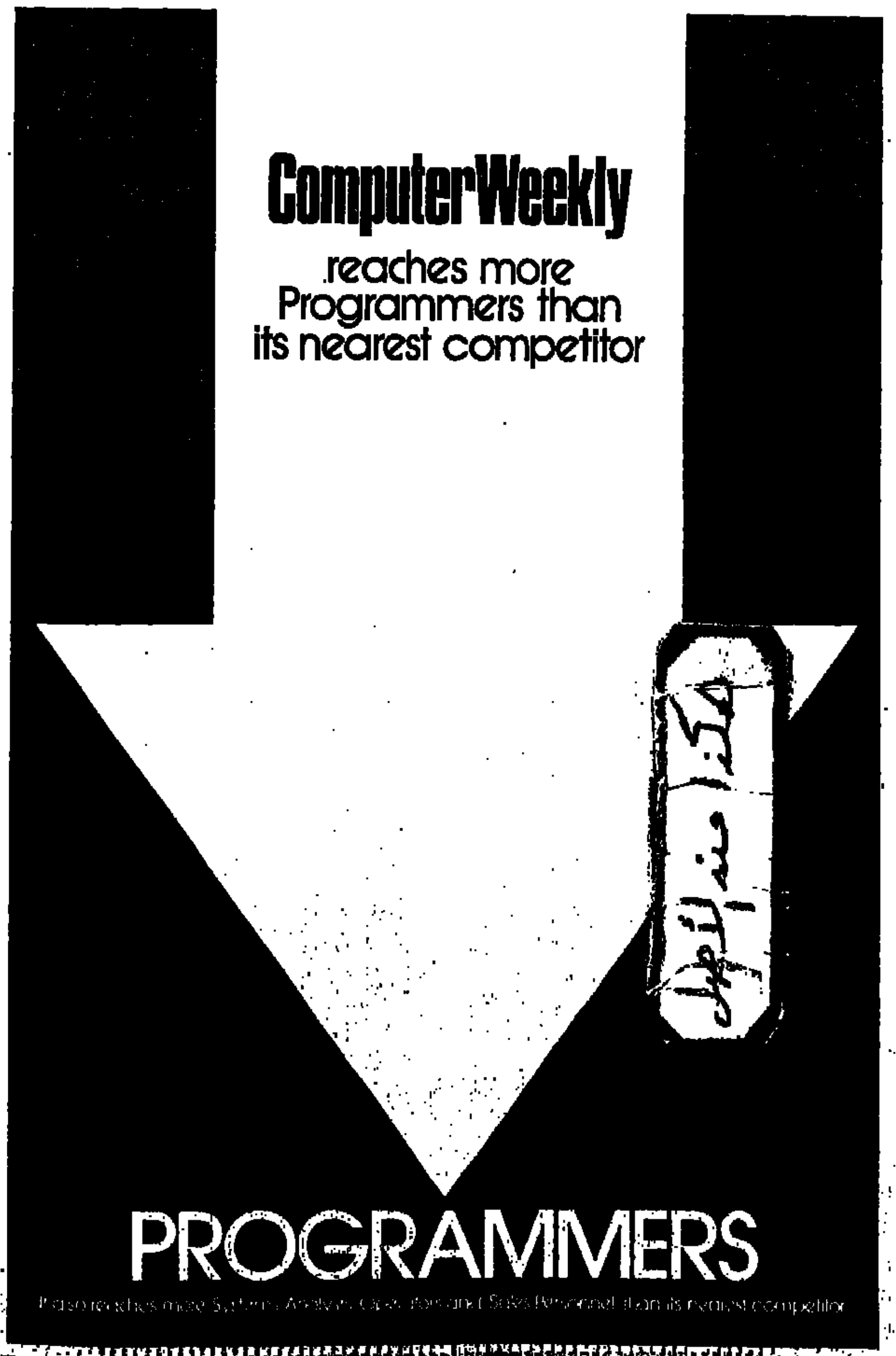

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(0474)

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PE

(0019)

Software Technology Research

The Science and Engineering Research Council has just initiated a national programme of academic research into Software Technology. The programme's objectives are to stimulate more high quality software engineering research, to improve the academic software technology base of software tools and computing facilities (UNIX, PERQ single user systems, high speed local and wide area networks), and to promote technology transfer between academia and industry.

The programme will last at least 3 years and is being co-ordinated and supported by the Computing Division of the Rutherford Appleton Laboratory which requires two further staff.

Software Technology Co-ordinator.

Someone with a formal, state-of-the-art understanding of Software Engineering who can guide the national research effort and build links with industry. The successful candidate is likely to have had post doctoral research experience. Appointment will be made at Senior Research Associate level for a fixed 3 year term.

Software Technology Programmer.

Someone to mount and develop software tools, generated by the programme, on the network of PERQS running UNIX. PASCAL or UNIX experience desirable, but not essential. Final year undergraduates in computing-related subjects may apply. Appointment will be made at SO or HSO level.

Salaries will be:

Scientific Officer	£5,422-£7,399
Higher Scientific Officer	£6,840-£9,126
Senior Research Associate (fixed 3 year term)	£8,596-£9,676

Appointment as a Higher Scientific Officer requires a good honours degree and several years relevant experience.

The Laboratory is a friendly community with its own restaurant and extensive sports facilities nearby. Benefits include a local transport service, generous holidays, and a non-contributory superannuation scheme.

Contact Recruitment Office, Personnel Group, Rutherford Appleton Laboratory, S.E.R.C., Chilton, Didcot, Oxon. OX11 0QX, or telephone Abingdon 21900 Ext. 510 quoting ref. VN 049.

Closing date for applications: 23rd August 1982

(0308)

serc Rutherford Appleton Laboratory

Switzerland

Real Time Software for Process Control

Senior Software Engineers/Software Engineers

An expanding sub division of an International Company specialising in Process Control for Power Station Computer Systems and Energy Management Control Systems seek additional Engineers for permanent careers on English speaking Projects in Switzerland.

The senior positions fall into four categories and candidates should have relevant experience to work on the following areas:

Quality Assurance
- ★ Methods
- ★ Tools
- ★ Operating Systems
- ★ Programming Environment

Man Machine Communications
- ★ Display Systems
- ★ Plotters
- ★ Mimic Boards
- ★ Engineering Consoles

Communications Networks
- ★ X25
- ★ Decnet
- ★ Systems Architecture

Power Applications Systems
- ★ Electric Network
- ★ Closed Loop Control
- ★ SCADA

Software Engineers; we are looking for candidates to concentrate on establishing new standard Software. Successful candidates should have most of the following experience: A degree, 3/5 years' Real Time experience, PASCAL, CORAL, Assembler, VAX 7/80, PDP11, VMS, RSX11M and Industrial Systems. CW29/1

Telecommunications Software Development

English Speaking Project

We have been retained by an international telecommunications company to recruit several SOFTWARE ENGINEERS to develop and implement software for a NEW PUBLIC DATA SWITCHING SYSTEM, involving working on Operating Systems, Diagnostics, Telex applications and X25 interfaces.

Candidates should have a degree, 18 months plus Assembler experience, preferably in a Telecommunications environment on minicomputers. An in-depth knowledge of Real Time Operating Systems would be advantageous.

Successful Candidates may look forward to enhancing their career prospects, gaining valuable experience in an international environment. CW29/2

Interviews will take place in London later this summer. For further details on the above two companies, conditions of employment and living in Switzerland. Please send C.V. or write for application form quoting the reference number.

APRIL Advertising
5 Brighton Road Surbiton Surrey KT6 5LX.

(0490)

Systems Analyst

up to £11,164*

*** Pay review under negotiation, effective 1 July**

At the LONDON BOROUGH OF HARROW we are expanding our computer function. We have an IBM 4341 operating under VM and DOS/VSE, providing both batch and on-line service, and teleprocessing is currently under the control of SHADOW II (shortly to be replaced by CICS). Our plans include an expansion in the use of the WANG Information Processing Systems throughout the Authority.

This is all part of a structure created to develop and install new projects. We provide a service to Libraries, the Area Health Authority, Housing, Engineering and Architect's departments as well as the usual financial applications.

To carry through this ambitious plan we require a first class systems analyst, male or female. Applicants should be capable of liaising with users at all levels to define their requirements and should have the proven ability to take responsibility for the design, implementation and maintenance of systems.

We can offer many benefits and advantages: flexible working hours, 23 days' holiday, annual season ticket loans, pension scheme, sick pay, etc. Pleasant modern offices with subsidised restaurant and our staff club. Easy access by public transport and ample parking space. Shops, restaurants and a superb leisure centre within a few minutes' walk. And excellent prospects for both job satisfaction and career development.

Application forms, returnable within 14 days of the appearance of this advertisement, from the Controller of Financial Services, London Borough of Harrow, PO Box 21, Civic Centre, Harrow, Middlesex HA1 2UJ, telephone 01-863 5611 ext 2339.

Harrow Finance

SOUTH DEVON TECHNICAL COLLEGE TORQUAY

Required 1st September, 1982:

TEMPORARY LECTURER 1 COMPUTING SCIENCE/DATA PROCESSING

To teach both theory and practice in awareness, appreciation and application courses, including Business Studies and 'A' level GCE.

This post is temporary for 1 year in the first instance.

APPLICANTS SHOULD BE TRAINED TEACHERS PREFERABLY GRADUATES. INDUSTRIAL OR COMMERCIAL EXPERIENCE WILL BE AN ADVANTAGE.

Salary Scale (Burnham F.E. Report)

Lecturer I £6,356-£9,267 per annum

(Placing on scale according to qualifications and experience.)

Further details and application form, returnable by Friday, 20th August, 1982, from Senior Administrative officer, Newton Road, Torquay, TQ2 5BY. (s.a.e. please) (0492)

ANALYST/ PROGRAMMER

OXFORD

We have recently installed an IBM System 38 in order to develop our on-line systems and now require an Analyst/Programmer who can make an effective contribution as part of a small development team.

Sound programming ability using RPG II or RPG III is essential, as is experience of a similar installation, although not necessarily using IBM equipment.

Salary is negotiable and an attractive range of benefits is offered.

For further details and an application form please contact John Crowson on Extension 229 or David Gribble on Tackley (086 983) 569 (evenings and weekends).

CSE Aviation
Limited, Oxford
Airport,
Kidlington, Oxford
OX5 1RA. Tel:
(086-75) 4321

0483

ADVERTISERS

Please note on August 12, 1982, we will be publishing an Irish Recruitment feature.

Further details contact, Owen Kelly on 061-872 8861.

(0489)

Portsmouth Polytechnic
DEPARTMENTS OF CIVIL AND ELECTRICAL ENGINEERING

Post Doctoral Research Fellow (Electrical Engineering)

An SERC sponsored programme "The Improvement and Optimisation of Sewage Works Performance Provided by Automatic Control" requires a person with expertise in control theory and digital techniques and also with a practical frame of mind.

Salary: £8882 rising to £9330 per annum, for a period of two years.

Application forms and further particulars from The Personnel Office, Portsmouth Polytechnic, Town Mount, Hampshire Terrace, Portsmouth PO1 2QG, Tel: (0705) 833929, to whom completed applications should be returned by 31st August. Please quote ref H10.

(0484)

SOUTH COAST

If you'd like to know more about vacancies for Operations, Programming or Analysis in the Southern Counties ring
Jeff Minards
The Managing Director of
CBS APPOINTMENTS
Bournemouth (0202) 292155 or at home evngs/w/ends 0202-884891
(0427)

BOX NUMBERS

Box number replies should be addressed to:

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c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

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£16,000-£21,000 tax free

HP Systems Manager to review present systems and prepare for conversion to IBM.

Analyst/Programmer for MIS. You must know database and have good accounting experience.

Analyst/Programmer with BASIC/FORTRAN and/or COBOL. Preferably with experience of micros in distributed network and ideally, a knowledge of the construction industry.

Permanent employment + benefits including housing, car, medical aid etc.

Also Saudi contracts for IBM experience – PL/1, MVS COBOL.

For more information, contact IMERS now by telephone, or write to the address below.

IMERS
International and Middle East Recruitment Specialists

IMERS Limited,
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1 High Street,
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Tel: 0702 333516
(24 hour answering service).

SMR
Sales & Marketing Recruiters Ltd
A Sales and Marketing Services Company

Senior

Sales Recruitment Consultant

If you are in the recruitment business you will already be aware of the considerable reputation of Sales and Marketing Recruiters as a highly professional organisation specialising in the recruitment of sales and marketing personnel at all levels. If you are working in sales or management for a computer supplier it is likely you will know us for the very same reasons.

Our continuing success has now created the need for a senior sales recruitment consultant to join our well established operation in

The Midlands & Northern England

We are seeking a charismatic and altruistic person who has thorough experience of both selling and computers, preferably including sales management, with the talent and energy to expand our well established client base. Whilst we are prepared to consider applicants who are already working within the recruitment business we will not compromise our minimum qualification of substantial sales experience within the computer industry.

Despite the formality of our assessment methods and our rigorous maintenance of highly ethical business standards we are a very informal and democratic organisation and believe in providing our people with every possible opportunity to exploit their talents based on operational freedom and individual commitment. This could be the very opportunity you need to gain real vocational satisfaction and build a worthwhile future.

Candidates will ideally reside within easy reach of Lichfield and should provide complete career details to Alan Williams at our Lichfield office.

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29 Oxford Street
London W1. (01) 734 9776

MIDLANDS & NORTH
39 Bore Street, Lichfield
Staffs. (05432) 56612

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SALES TRAINING, MARKET RESEARCH, RECRUITMENT

UNIVERSITY OF LONDON INSTITUTE OF EDUCATION
Department of Mathematics, Statistics and Computing

PROGRAMMER

to join senior programmer and operator responsible for provision of help and advice to research staff and students using statistical packages or writing their own programs, usually in Fortran. Also help with the day-to-day running of the remote job-entry terminal (Dec PDP11/23 supporting eight terminals running under Unix) linking the Institute with all major University of London computing centres. Assistance in running computing courses for postgraduate students and developing program libraries will also be required. Good knowledge of Fortran expected and experience in statistics and with Unix an advantage. The post offers the opportunity to gain wide experience in research computing and would be suitable for graduate interested in computing career.

Salary within range £5285 - £6070 (under review) plus £1035 London Allowance.

Further particulars and application forms from Mary Griffin, Personnel, University of London Institute of Education, 20 Bedford Way, London WC1H 0AL, quoting reference P/MSC. Closing date for completed applications is 16th September.

(0488)

UNIVERSITY OF GLASGOW
ADMINISTRATIVE DATA PROCESSING

SENIOR ANALYST/ PROGRAMMER

Applications are invited from suitably qualified persons for a further vacant post of Analyst/Programmer within the Administrative Data Processing Section of the Registrar's Office. All administrative systems are currently run on the University's ICL 2976 computer. A DEC PDP11/34 mini-computer system is in use for on-line work. The person appointed would be involved in both the maintenance of current systems and the new programming applications which are planned.

Applicants should hold a University degree or equivalent professional qualification. Preference will be given to those with considerable experience of programming or analysis in a data processing environment but prospective graduates in Computing Science may apply. Salary will be on Grade 1A of the scales for Other Related Staff (£8,070-£10,575) with initial placement dependent upon qualifications and experience.

Further particulars may be obtained from the Secretary of the University Court (Room 18), University of Glasgow G12 8QQ, with whom applications (8 copies), giving the names and addresses of three referees, should be lodged on or before August 20th, 1982.

In reply please quote Ref. No. 4810P. (0454)

LEICESTER POLYTECHNIC
(School of Mathematics, Computing and Statistics)

MINI-COMPUTER MANAGER

The Science and Engineering Research Council is installing a GEC 4090 32-bit mini-computer at the Polytechnic, as part of its support for the Human-Computer Interface Research Unit.

The machine will be a node on the SERC's Interactive Computing Facility Network.

The manager of the 4090 will play an important role in the Unit's work and will be expected to contribute as a programmer.

The contract will, initially be for four years and will be on the Research B scale £8,892-£11,022 per annum. (Starting point dependent on age and experience).

Application forms and further details are available from the Personnel Officer, P.O. Box 143, Leicester LE1 9BH. Tel. (0533) 551551, Ext. 2303.

(0457)

COMPUTER FIELD SERVICE ENGINEER

NORTH LONDON AND GLASGOW

Engineers with at least 2 years' experience in maintaining high performance minicomputers, disc drives and magnetic tape drives are required in the above areas.

The successful candidates can expect an excellent salary plus company car and other large company benefits.

If you are interested in joining one of the most successful companies in the industry please send your resumé or request an application form from:

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GOULD S.E.L. COMPUTER SYSTEMS LIMITED
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Sutton, Surrey SM1 4SY
Telephone: 01-643 8020

GOULD
Electronics & Electrical Products

(0458)

Somerset County Council

TREASURER'S DEPARTMENT – COMPUTER SECTION

POST A

SYSTEMS ANALYST

required. Salary up to £10,275 per annum

POSTS B & C

TWO SENIOR PROGRAMMERS

required. Salary up to £9,528 per annum

The County Council has a full development workload and there is an immediate requirement for experienced staff. Development is mainly on the ICL 2966 mainframe (DME/G3) and minis and micros are also in use. COBOL and FILETAB are mainly used with TPS for on-line facilities.

The Systems Analyst will be working on the development and maintenance of financial systems and several years' systems experience is required although not necessarily on financial work. A good record of analysis, design and implementation is a necessity.

The Programming posts will be involved either with financial work or with work for organisations outside the County Council (District Councils, Police Authority, Health Authority). Several years' experience is required, preferably in the relevant machine and software areas. Additional training however, will be given if required.

Starting salary will be in line with experience and ability and there is a career progression scheme. Holiday entitlement is good and assistance with re-location expenses is available.

Applications giving full details should be sent in writing to the County Treasurer, County Hall, Taunton, Somerset, by 27th August, 1982. For an informal discussion, please ring Mike Holmes on Taunton (0823) 73451 Ext. 5271.

(0465)

SALES BIT

Quality of Management – 21

How to get your money's worth from an agency

SOME recruitment agencies have more to offer than others. Price is not a basis on which to make a judgment – fees do not vary greatly, but quality does.

Some agencies understand your problem because they have experienced it from both sides of the table, they have real credibility in the eyes of potential recruits and they know about recruitment and the generation of candidates.

Selecting the right company and developing a positive understanding of your present requirements and a continuing relationship is most important. The chances are that your requirements will not be completely satisfied with the initial campaign, so having someone who knows what you are looking for and is constantly searching on your behalf is important. In fact this kind of understanding can often bear more fruit than a preceding campaign.

Is it necessary to get involved with the expense and commitment of mounting a recruitment campaign with one agency, or could you solve your problem more quickly by shopping around several agencies to see if they have someone on their books to fit the bill?

There is a chance this might work – so it is worth trying. But remember it is a waste of everyone's time if you do so without first specifying in detail what sort of person you are looking for, why he or she should want to come to work for you, and what is in it for the potential employee (ie a job specification). Any decent agency would probably refuse to proceed without such information.

The other thing to do is evaluate the skill and experience of each agency you contact. That way you will know whom to contact if and when you decide that a formal recruitment campaign is necessary. So it is a good idea to shop around the agencies, but remember the best salespeople are not usually looking for another job and good salespeople rarely need to hang around on agency files.

Once the agency trail has been exhausted you are back to square one – deciding whether you do it yourself, or call in a specialist sales recruitment organisation.

There are a number of significant benefits in using an agency. There is, of course, the obvious benefit that you can use your own time to greater effect elsewhere, leaving the agency to wait around for someone worthwhile to telephone.

The next area of benefit to be gained from using a specialist sales recruitment agency is the utilisation of expertise that may not exist or be available within your own organisation. This applies both to advertising and personnel assessment. If you decide to use an agency you had better be sure copy writing skills exist, because advertising is expensive, and when an agency acts on your behalf it is your company as far as potential recruits are concerned. If you use an unenthusiastic and incompetent agency, your candidates will assume that "it takes one to find one".

As far as advertising is concerned, look out for the agency's knowledge of specialised trade Press when your requirement is for a particular applications skill. Flair and the consideration of a wide range of possibilities is an essential ingredient of successful recruitment advertising.

The acid test is in the advertising copy the agency presents for your approval.

Ask yourself if you could do better yourself. If the answer is yes, ask the agency to do it again.

The skills of personnel assessment are rather more difficult to quantify. Incompetence in this area is usually discovered after the event. However, a reasonable guide in this context is a view of the kind of candidate information that is normally supplied to clients. That will provide some measure of how much trouble is taken in evaluating prospective employees.

Once an agency regards you as an established client and develops a real awareness of your needs it begins to identify candidates new to its organisation as being in your particular mould. If a candidate can be identified as, say, "a DataGeneral man," there is no doubt about which client will have his papers first.

Anonymity is another significant benefit for many companies. It is amazing how many salespeople have irrational, preconceived ideas about certain computer companies. They misunderstand the product range, do not appreciate the real size, and so on. This is typically a problem for the larger companies. The smaller ones often have the problem of no real identity at all and therefore of little market appeal to many would-be applicants.

In both cases the problem is getting the message to the potential recruit rather than being qualified out at the advertisement level. The anonymous advertisement via a recruitment agency can usually get around this particular problem.

A word of warning: Don't be deluded by the apparent panacea of offers to headhunt salesmen. Salespeople are particularly vulnerable to promises of fame and fortune. Headhunting it may be called, but implied in that very term is cannibalism, for today's client is tomorrow's victim.

Alan Williams

PUZZLE ANSWER

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        3005028
199)598000572
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ComputerWeekly

Thursday, August 5, 1982

Shake-up of Burroughs' top UK men

by Kevan Pearson

BURROUGHS early this week announced a major shake-up of its top UK men.

The new managing director, Bob King joins the company from Scottish and Newcastle Breweries, where he was chief executive. He replaces Laurie Rushton, who is taking early retirement.

King will be joined on August 9 by David O'Brien, a former senior public sector marketing manager with IBM and the UK managing director of Cray Research. O'Brien will occupy the newly-created position of UK sales and marketing direcotr.

The changes echo similar moves in the US by Burroughs' chairman, Michael Blumenthal He took over as chairman just over a year-and-a-half ago, and since then has replaced many of the senior managers with men of his own. Blumenthal has put 20 outsiders into top managerial positions at the company. The process is now being repeated in the overseas operating companies.

The appointment of O'Brien is likely to strengthen Burroughs' "line of business" marketing approach, which bases sales on industrial sectors rather than on geographic areas. O'Brien has public sector marketing experience with both IBM UK and IBM Europe, and most of Cray's business has been with the public sector.

His experience will be of great benefit to Burroughs in its effort to grab a slice of the UK public sector, which ICL has previously dominated. Burroughs, like IBM and the other US-based manufacturers, is particularly keen to make an impression in the UK public sector where several large scale projects are planned over the next few years.

Blumenthal has achieved remarkable success at turning Burroughs from its disastrous financial track of only two years ago. Since he took over control, the company has shown a remarkably consistent level of growth, far outstripping the other manufacturers, except for IBM.

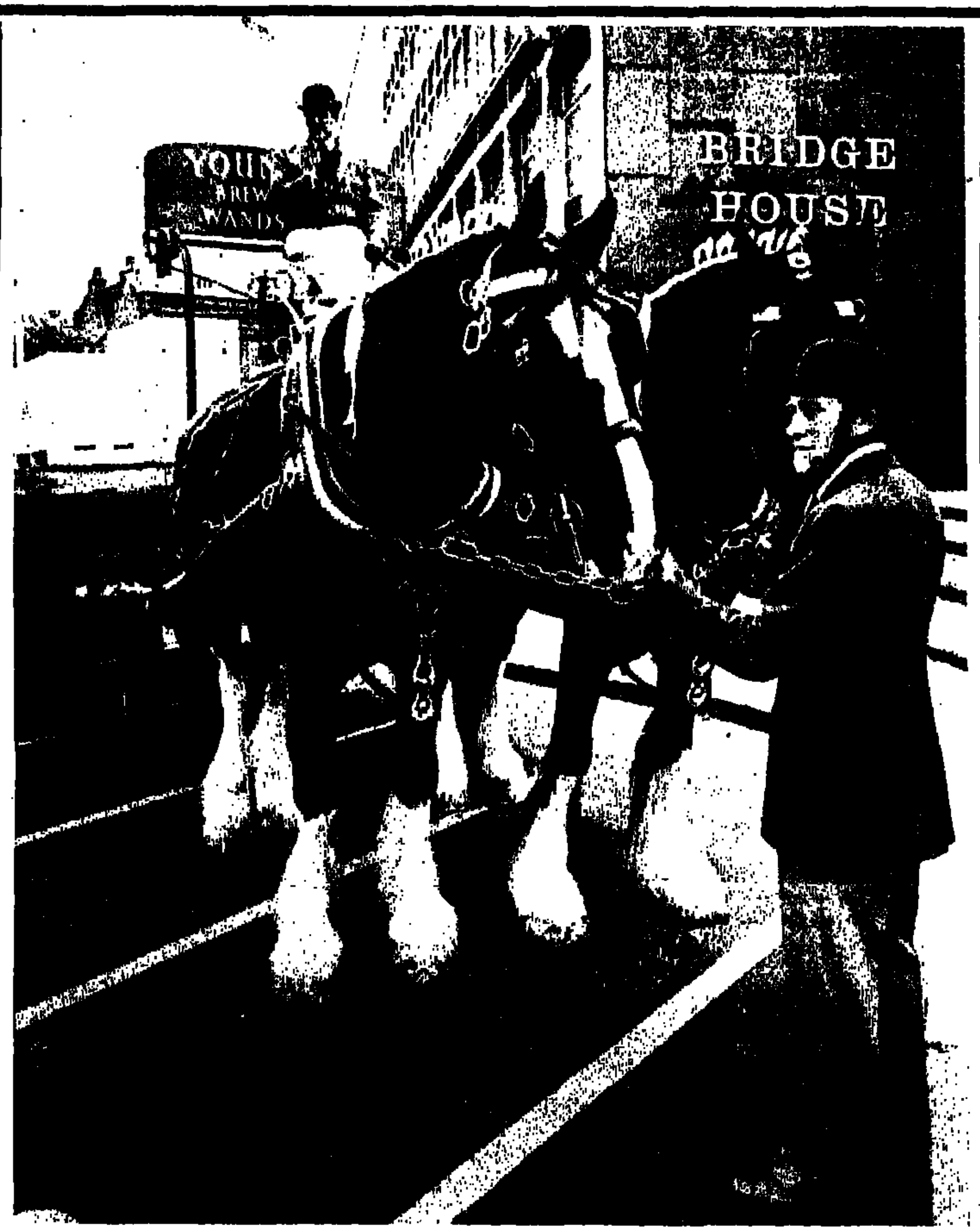
Software to hardware

by Robert Parry

SOFTWARE SCIENCES, Farnborough-based software house, has started to sell hardware. Its first product, a US 16-bit microcomputer, the Wicat 150, will be joined within a few months by other micros, minis and terminals and peripherals.

The distribution network will have outlets around the UK, including London, Edinburgh, Manchester and Bristol. It will be backed up by Software Sciences' existing hardware maintenance operation, established in 15 locations and growing at one a month.

The appointment of Software Sciences Distribution as a major dealer for the Wicat machine adds impetus to the growing movement towards high power micros built round the Motorola 68000 microprocessor and running the Unix operating system.



Young's Brewery, a traditional company based in South London, believes in real beer and real methods of delivering it. As ICL headquarters is within range of their brewery's horse-drawn delivery service, it was used to pick up their new ME29 computer.

US-Japan chip price fixing row

by Kevin Cahill

DESPITE US assurances to the contrary, a new probe into six Japanese chip manufacturers in the US is seen as a further extension of politically motivated harassment by the US Justice Department.

The six companies are alleged to have conspired to fix the price and limit the quantity of chips, particularly 64K RAMs, being supplied to the US market.

Among the companies cited in the probe, which include all Japan's principal manufacturers, are Hitachi and Mitsubishi, which have already been indicted for allegedly participating in illegal procurement of trade secrets from IBM.

The four other companies, Fujitsu, Oki Electric, Nippon Electric and Toshiba, have so far made no formal response but the Ministry of International Trade and Industry in Tokyo, which acts as spokesman in affairs of this nature, has claimed that the allegations are "unfounded".

The US Semiconductor Industries Association has been agitating for months to have allegations of dumping of cheap chips by the Japanese on the US market investigated.

The moves within the SIA, however, have been led by semiconductor companies without manufacturing facilities in Japan. Many US companies have significant semiconductor plants in Japan.

And the report which led to allegations of Japanese domination in the 64K RAM market was itself compiled in the early stages of the emerging market, before any volume of sales had been generated by any participants.

BT keeps best parts

● From front page

services to the DoI and to pay £100 a year. The licence runs for 25 years from last April and can be terminated by six months' notice or revoked (if the licensee fails to comply with its terms) by 30 days' notice.

Systems used to supply licensed services must only be connected to each other by the public network and transmission into or out of the UK continues to be covered by current rules – that is, messages must travel on a public network or must relate to the business of the company on whose private circuits it travels.

But systems must not process any messages which both originate and have their only destination outside the UK – a mysterious ban on exports of network services.

Services which are intended to operate under the licence include viewdata, electronic mailboxes, and facsimile transmission.

A grudging welcome for the draft licence came from Computing Services Association director-general Doug Eyeions. "Obviously we are pleased to have a general licence," he said, "but we are disappointed that this is not a licence that licences all value-added services.

"We think security services and message selection – where the system doesn't deliver a message if you're not interested in that category – and other things could be done that aren't covered by this.

"We would have preferred an explicit licence for all value-added services and the onus should be on BT to prove that a service doesn't qualify."

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